

THE IRON AGE

A Review of the Hardware, Iron and Metal Trades.

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Reading Matter Contents	page 176
Classified List of Advertisers....	91
Alphabetical Index to Advertisers ..	95
Advertising and Subscription Rates ..	199



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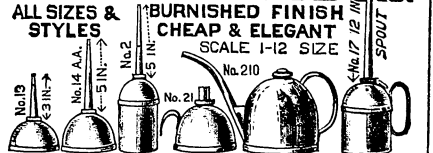


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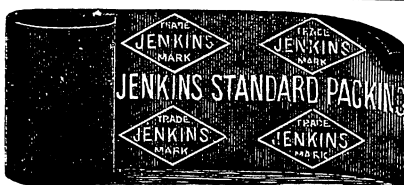
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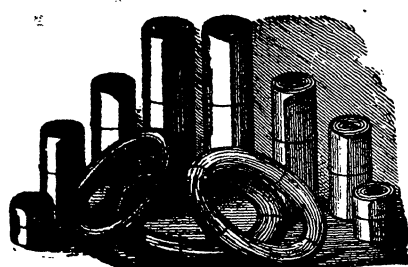
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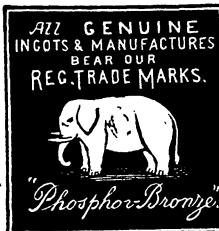
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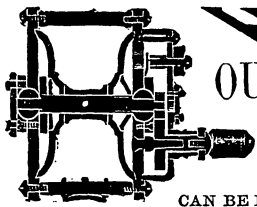
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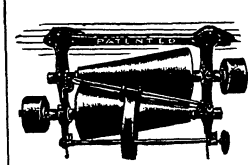
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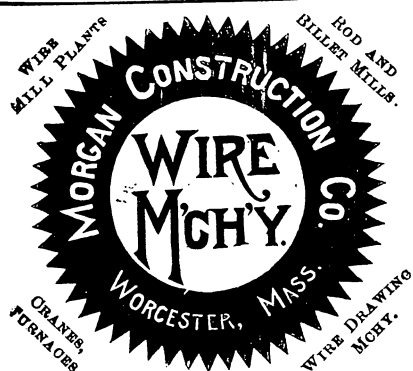
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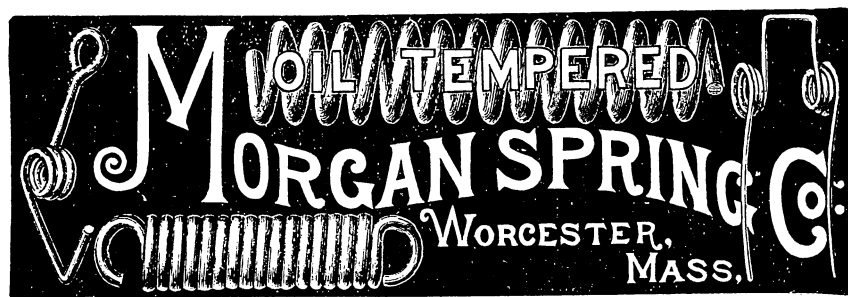
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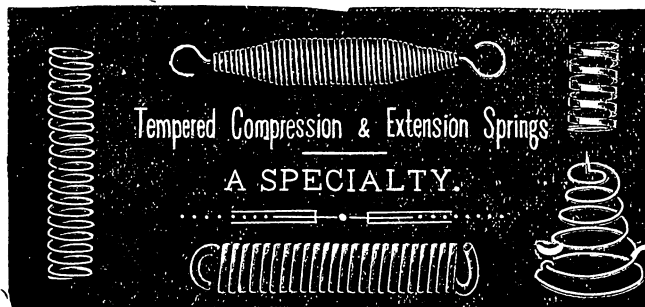
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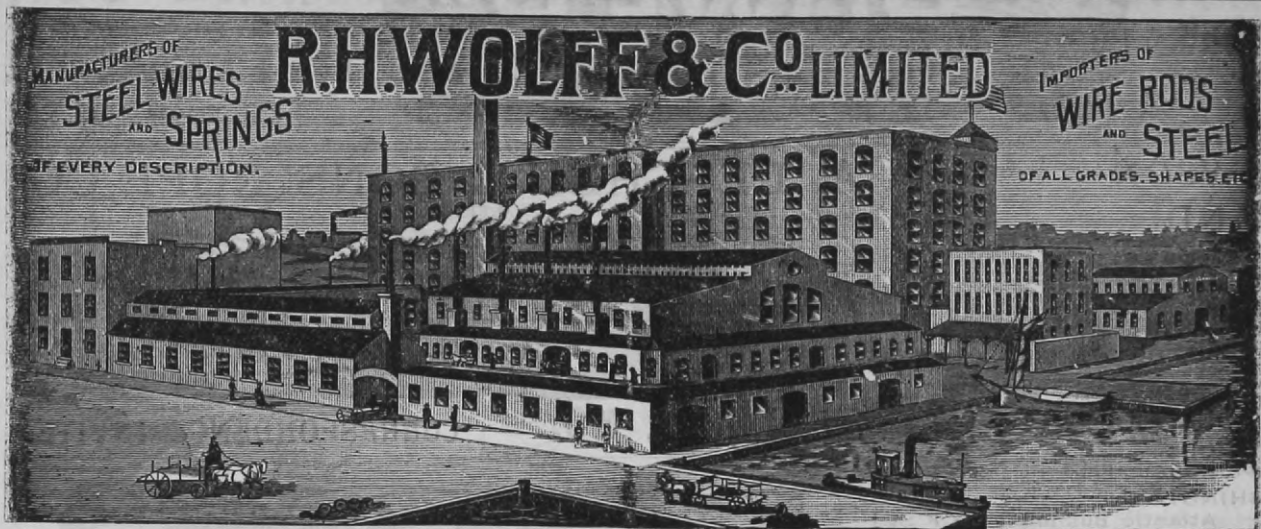


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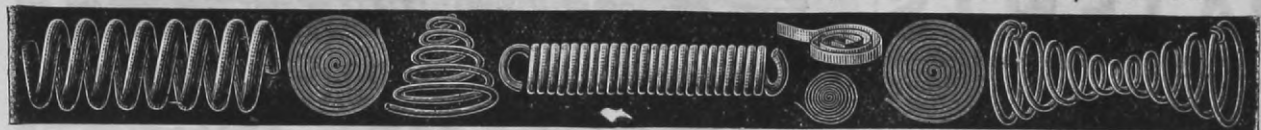
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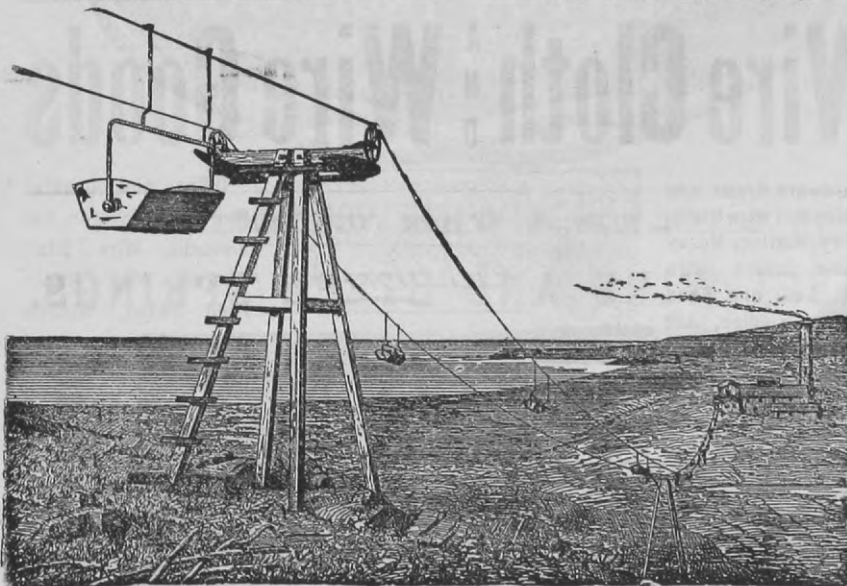
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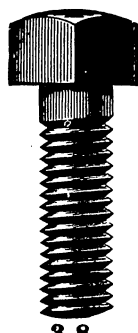
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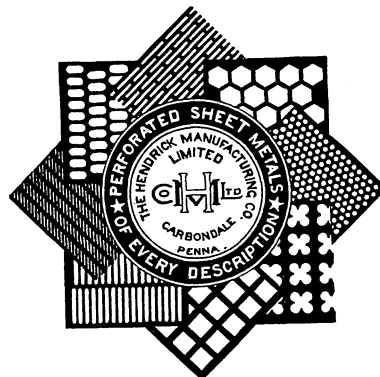


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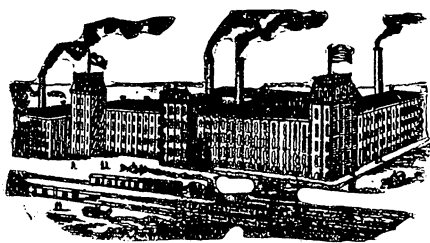


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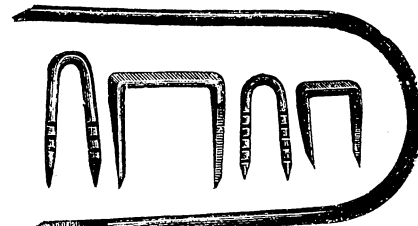
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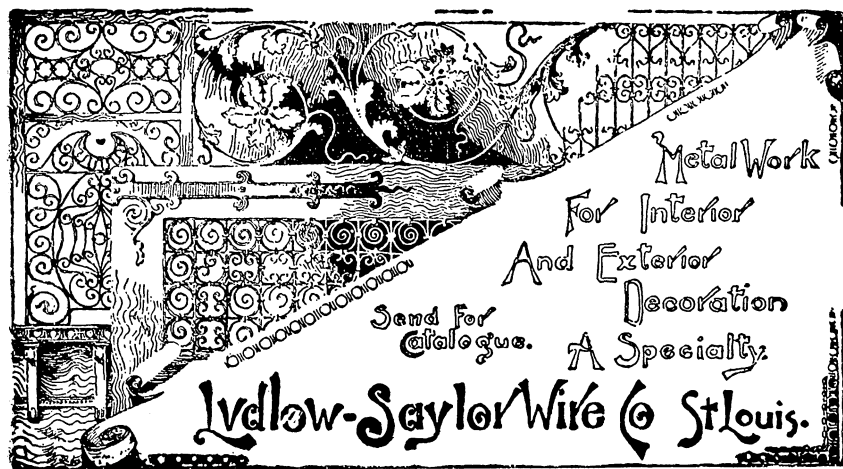
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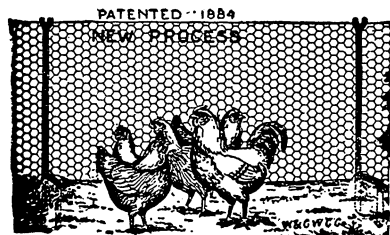
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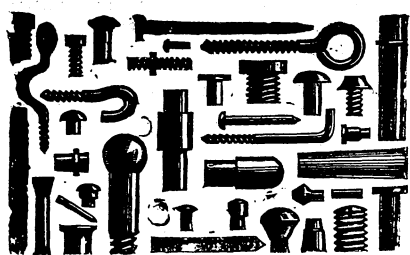
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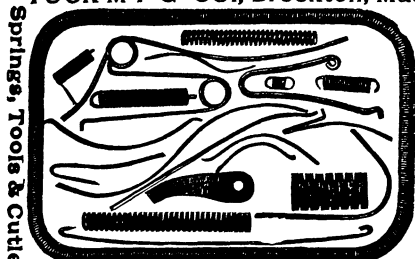
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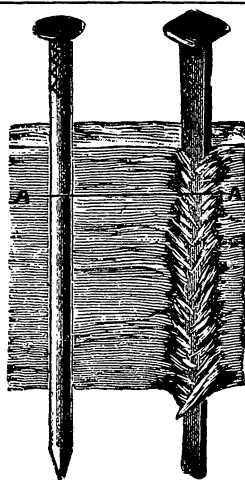
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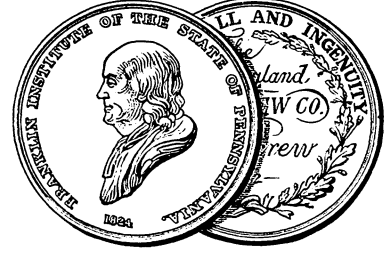
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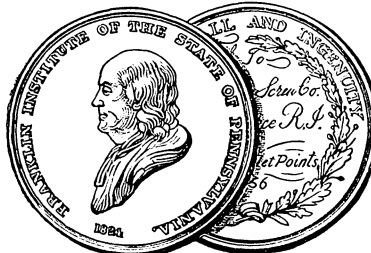
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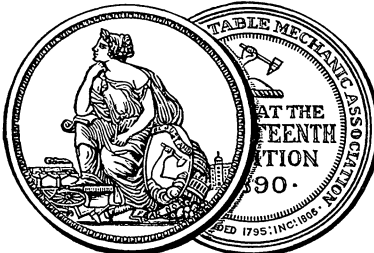
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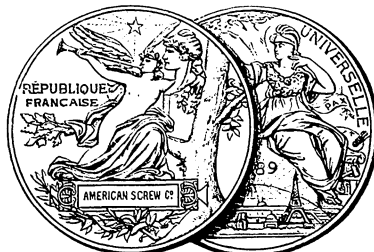
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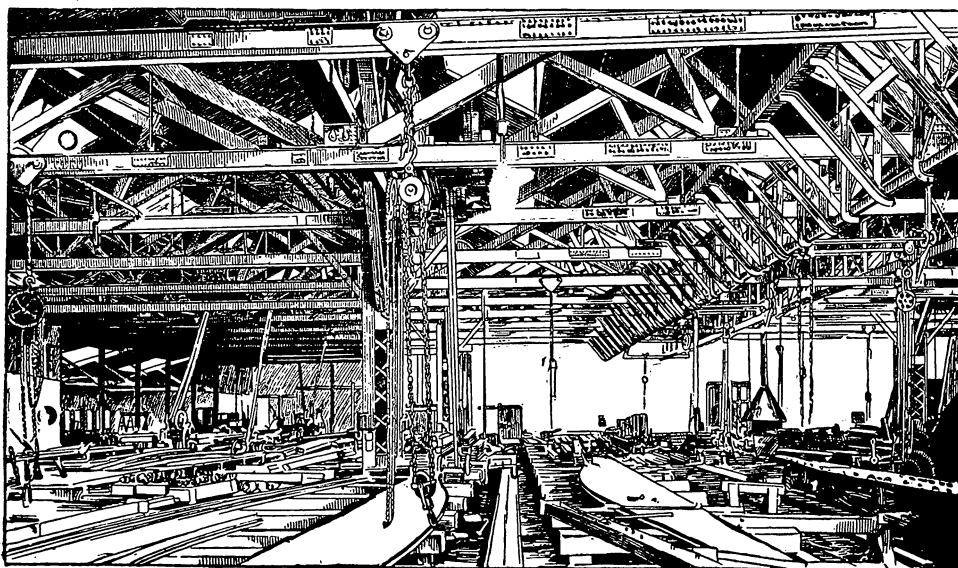
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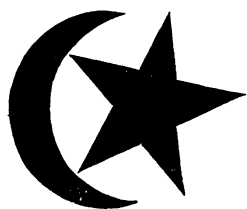
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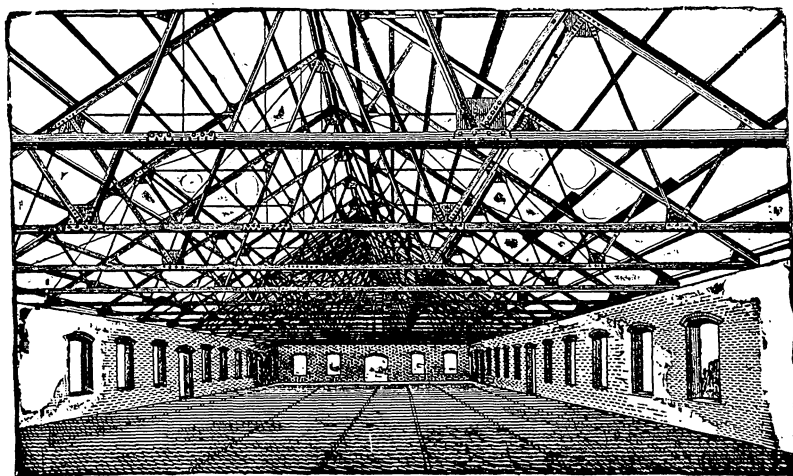
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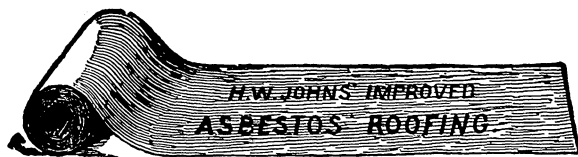


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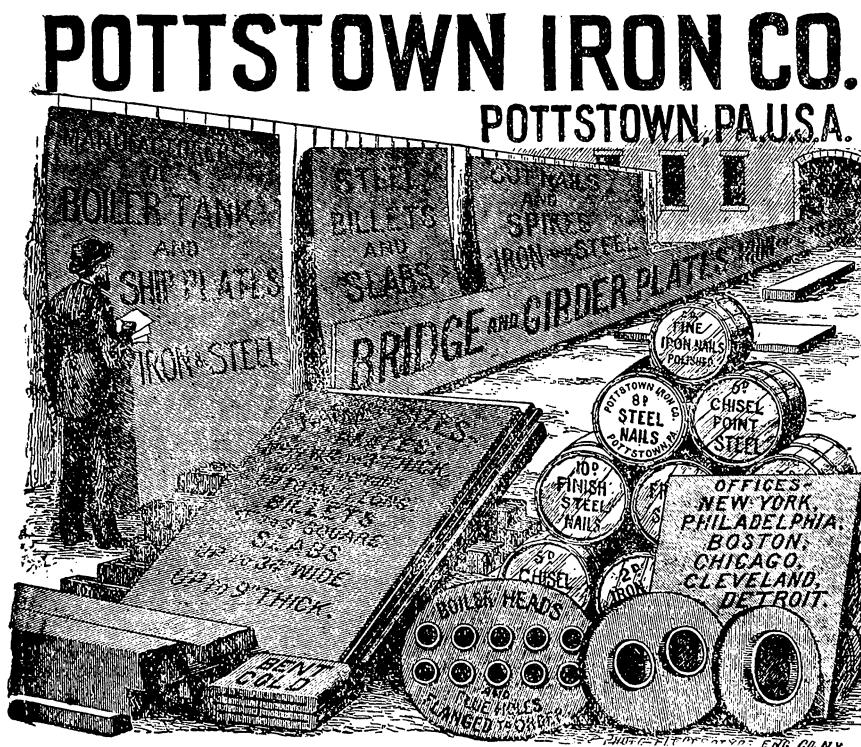
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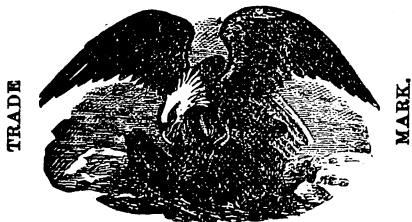
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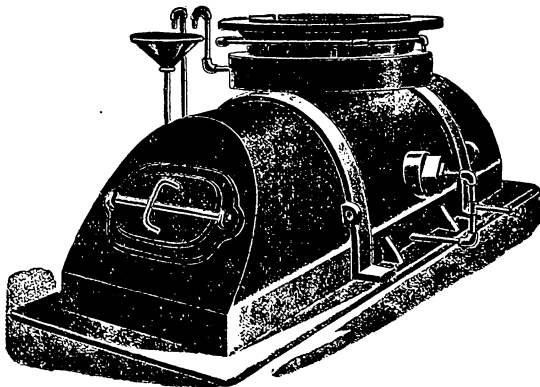
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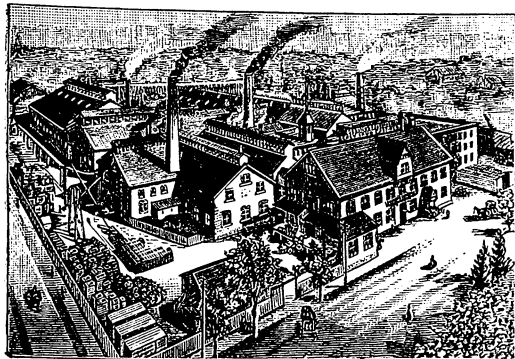
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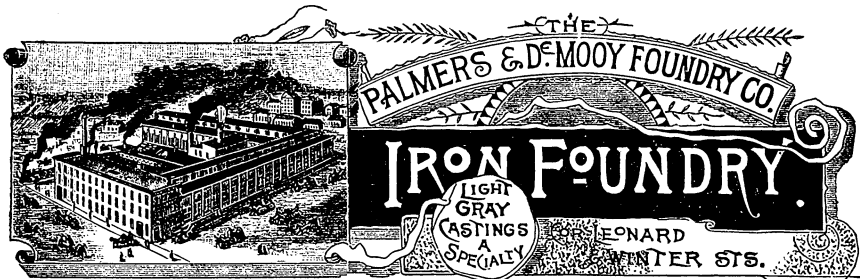




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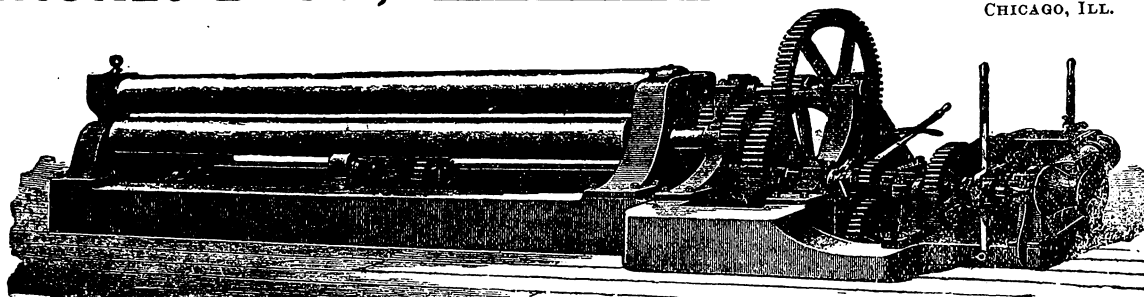
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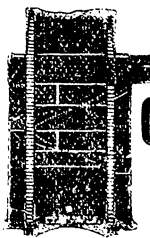
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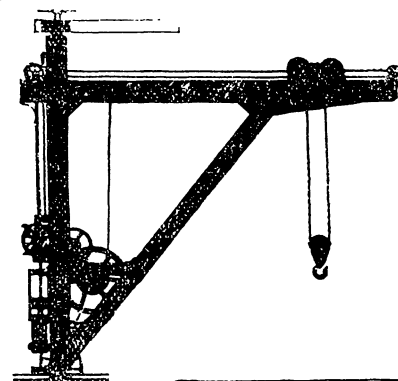
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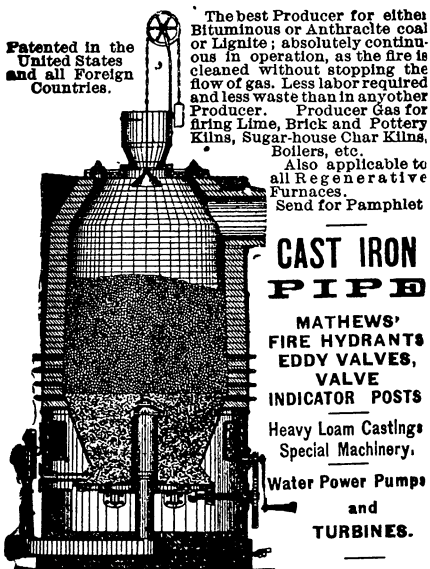
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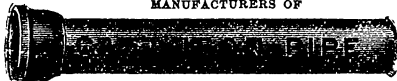
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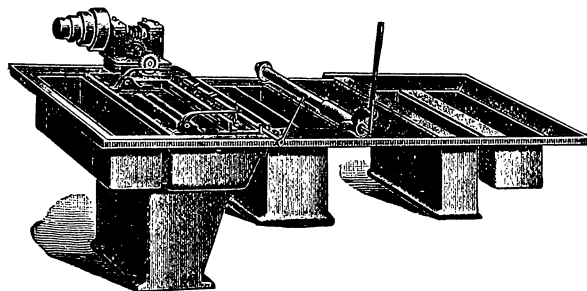
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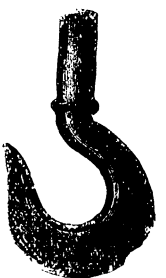
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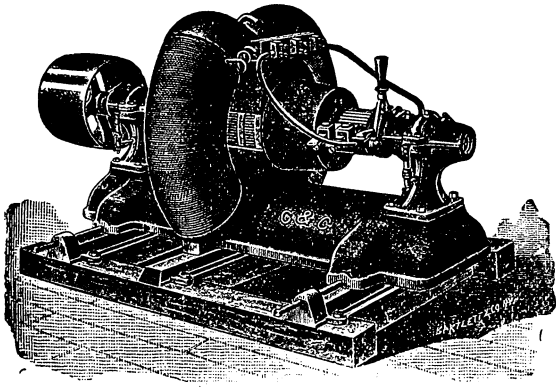
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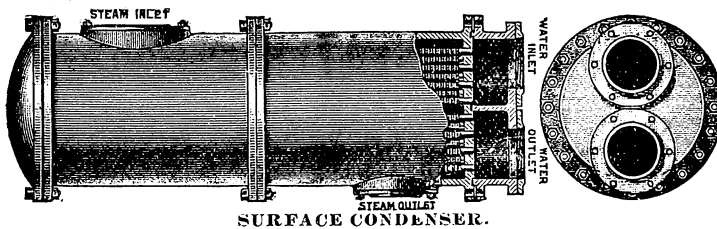
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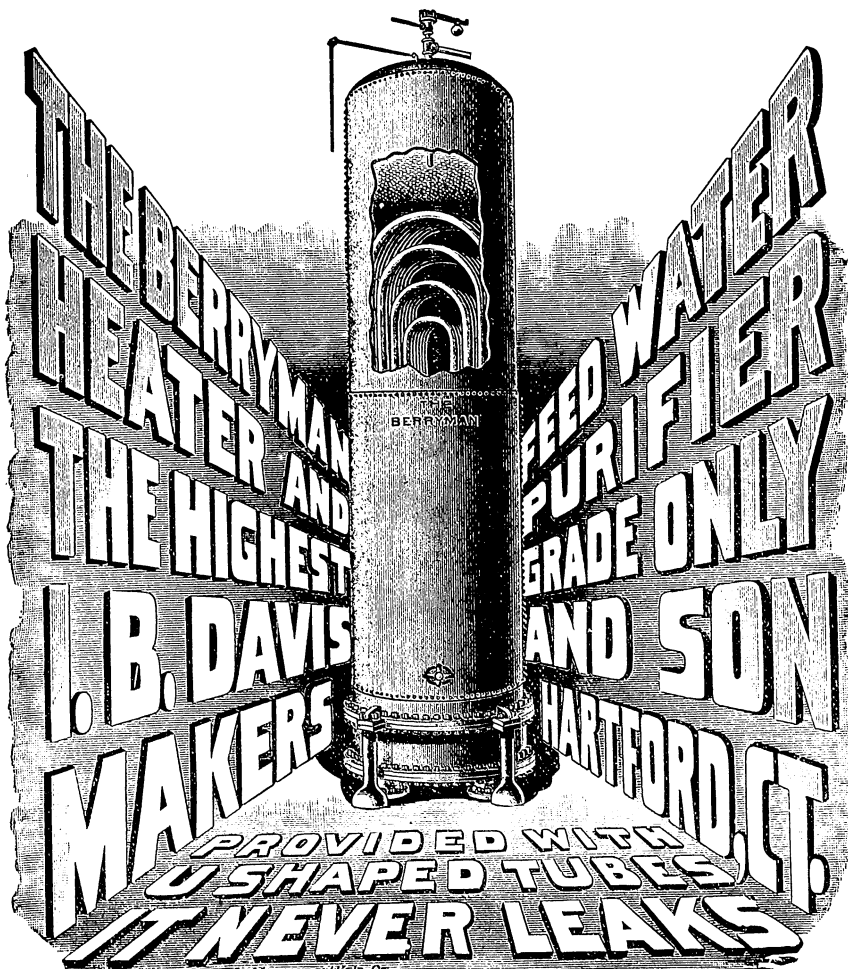
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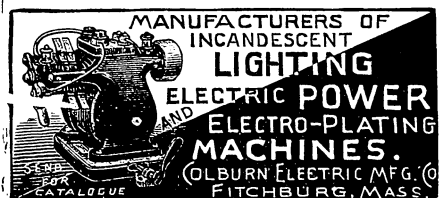
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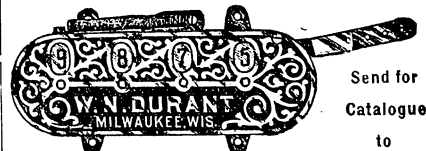


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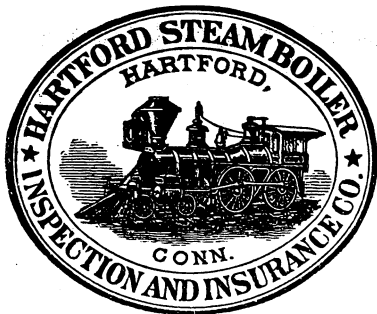
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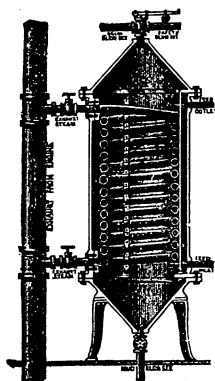
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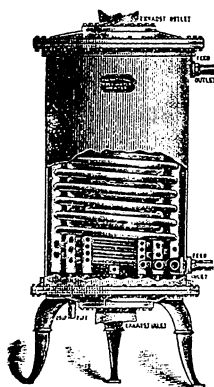
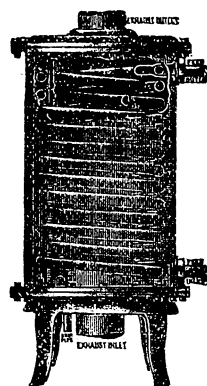
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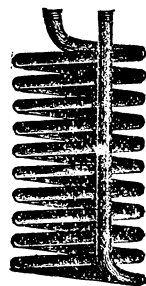


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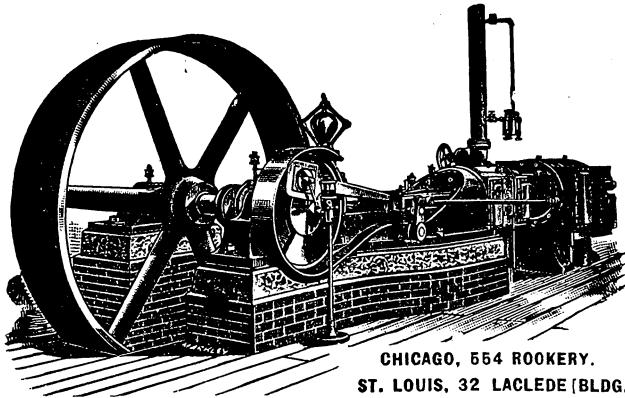
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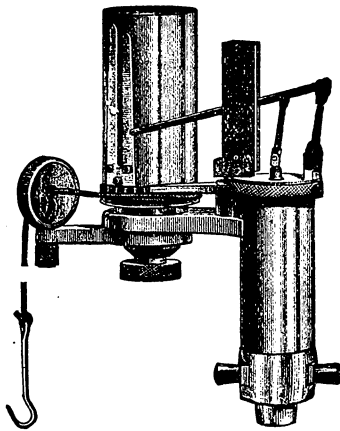
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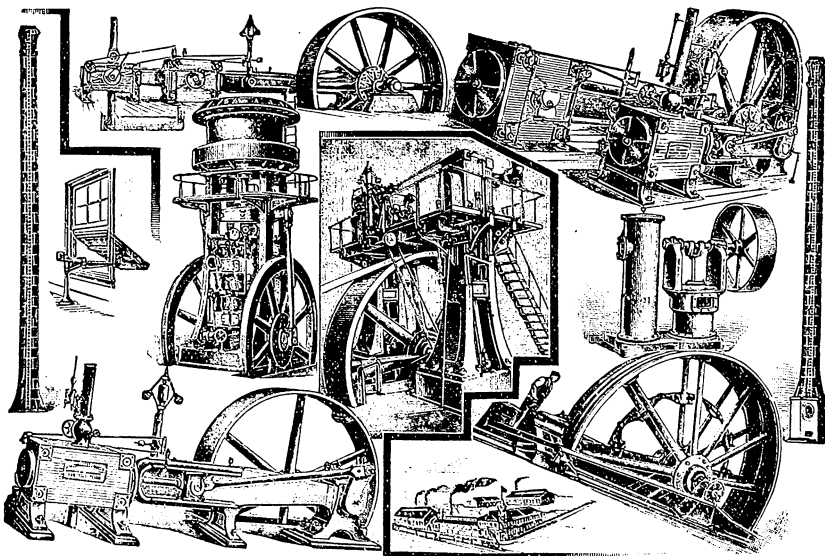
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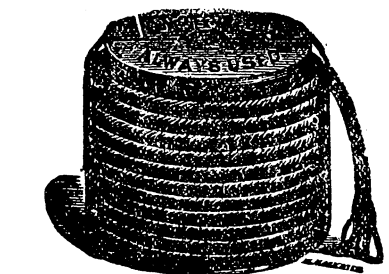
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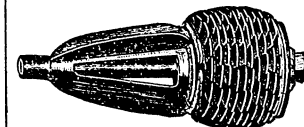


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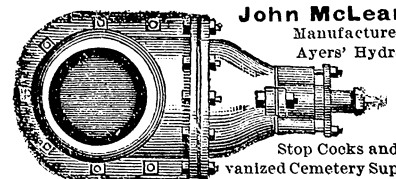


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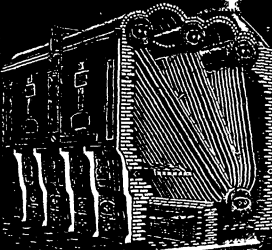
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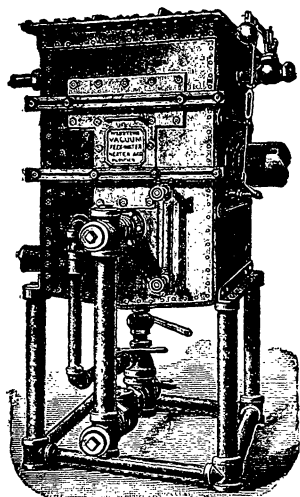
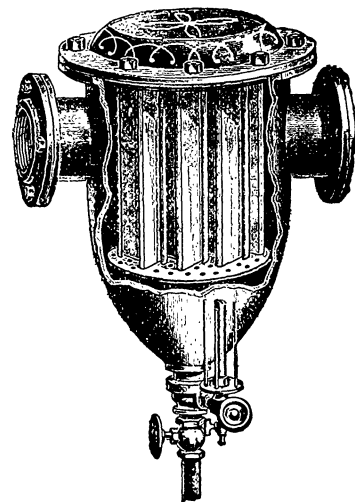
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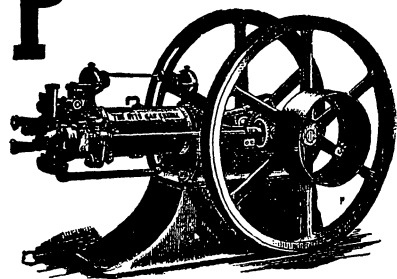
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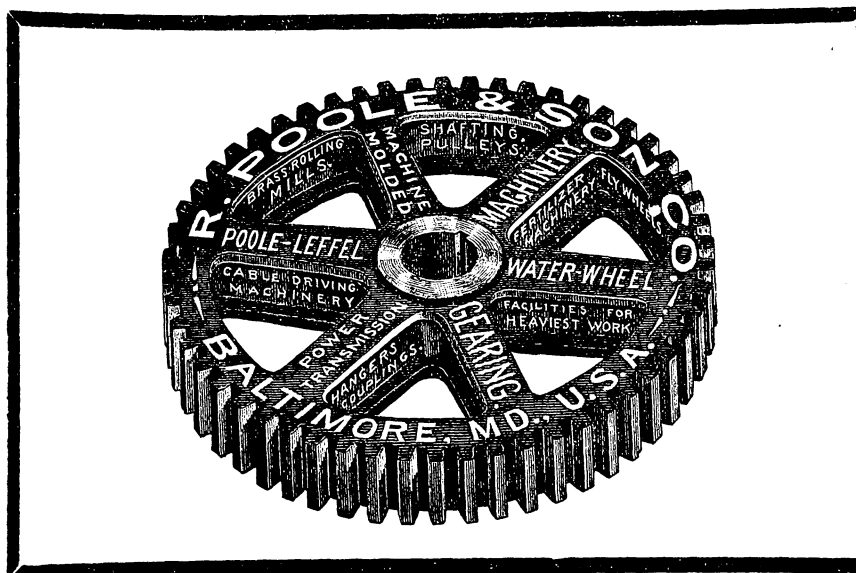
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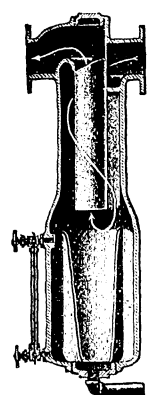


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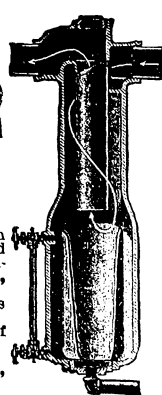
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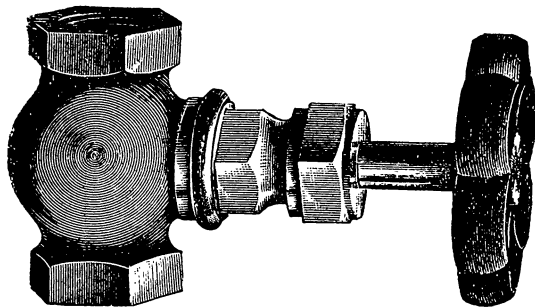
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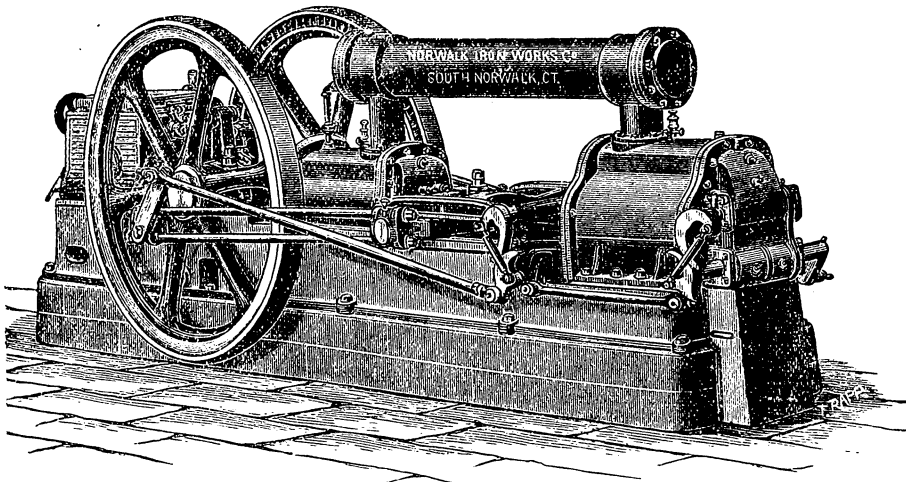
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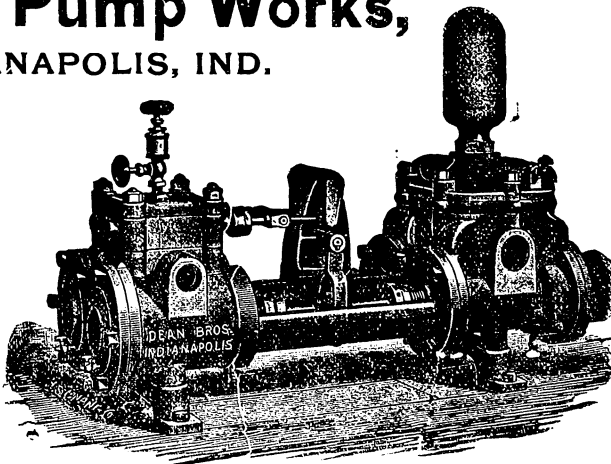
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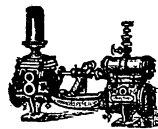
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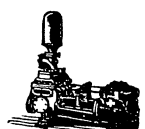
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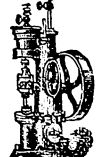
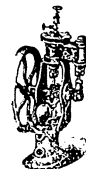


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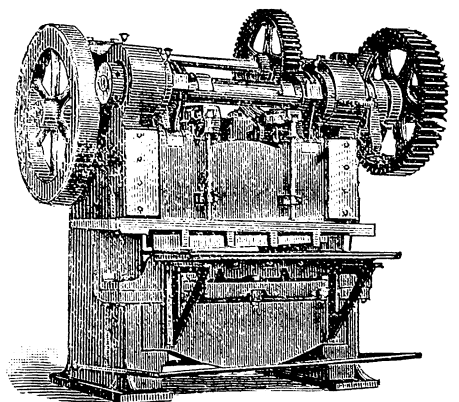
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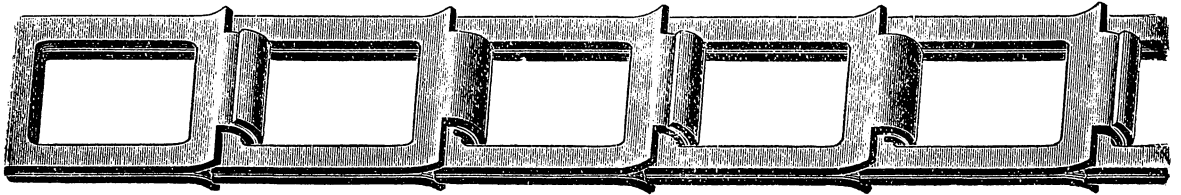
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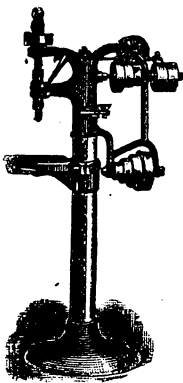
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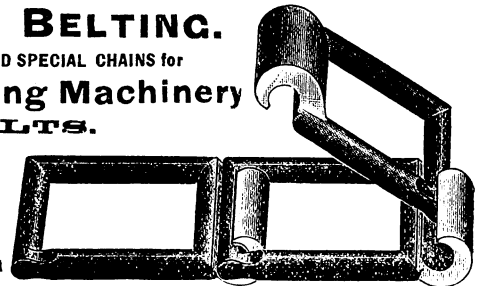
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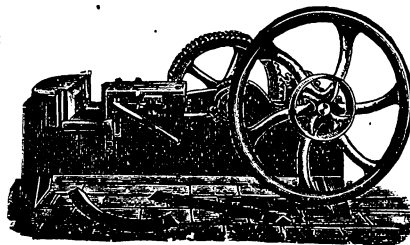
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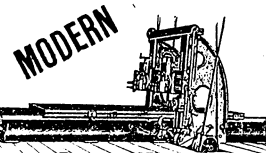
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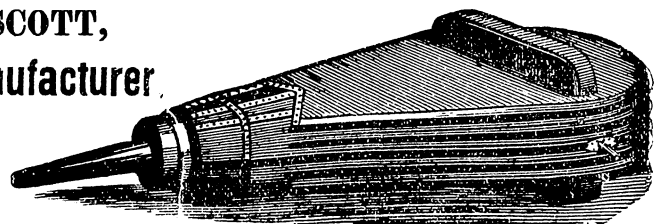
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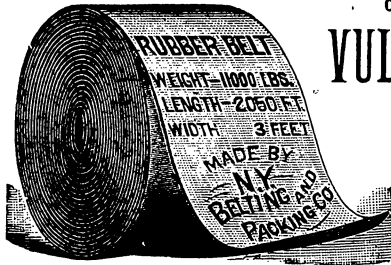
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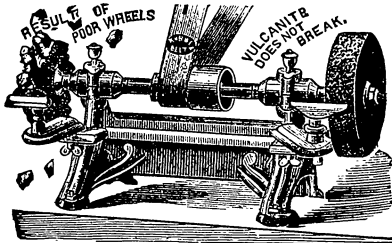
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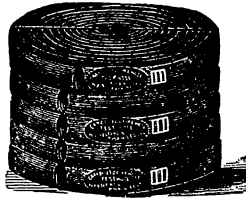
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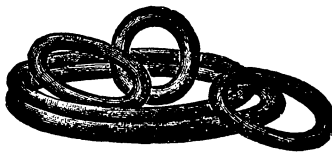
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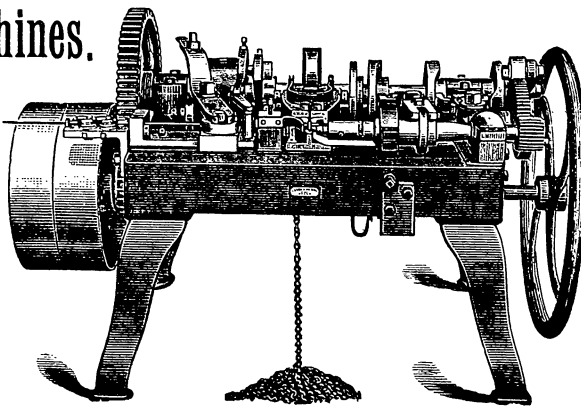
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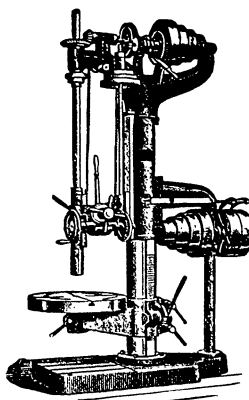
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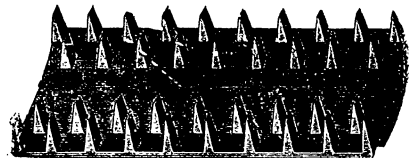
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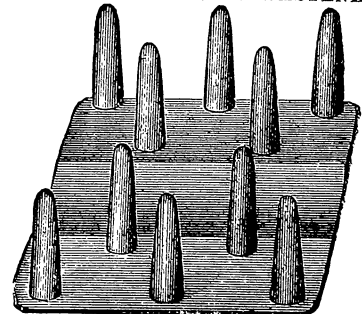


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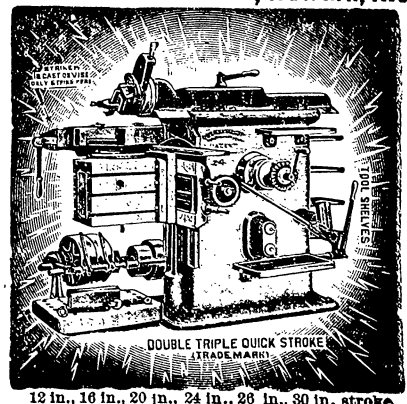


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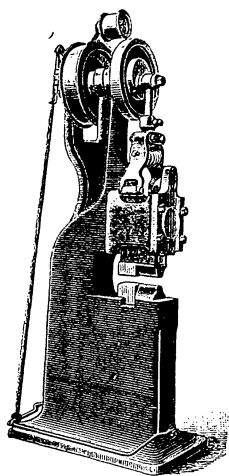
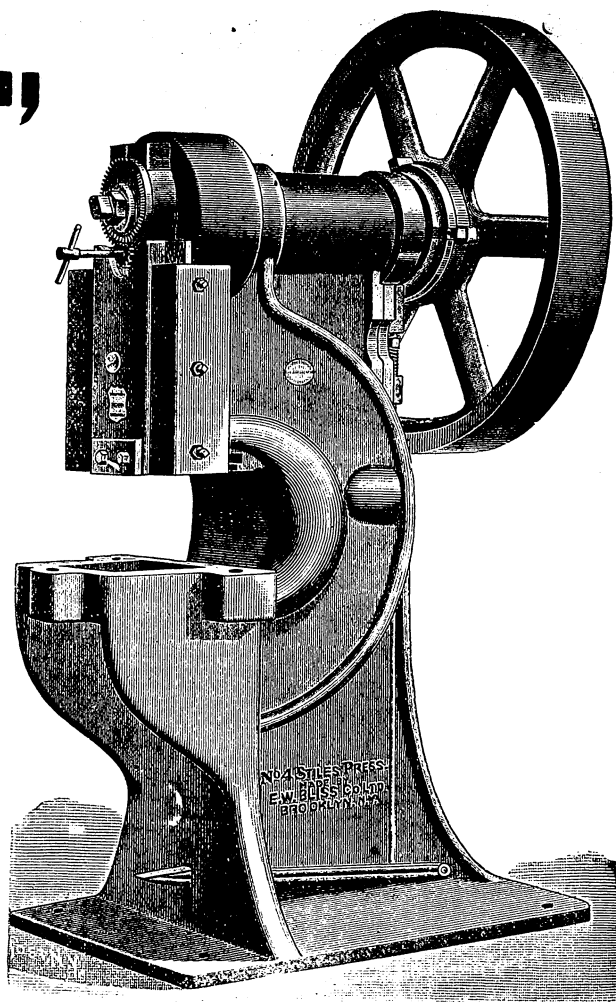
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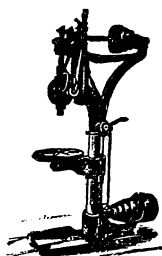
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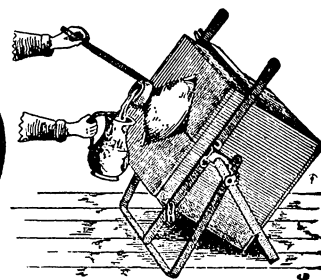
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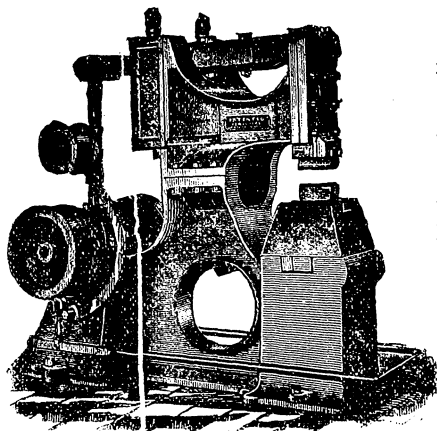
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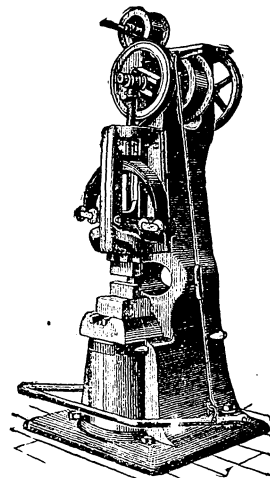


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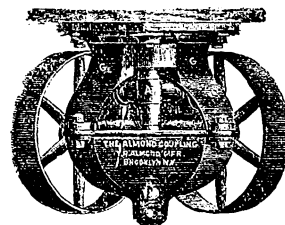
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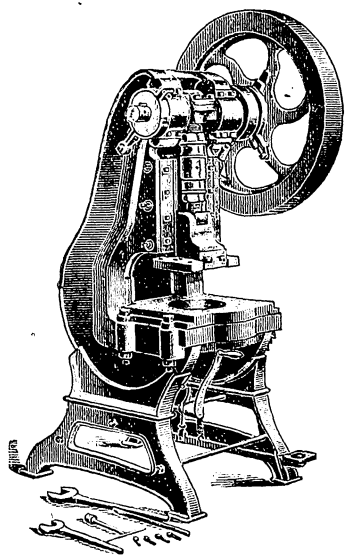
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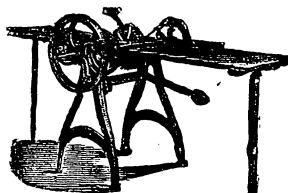
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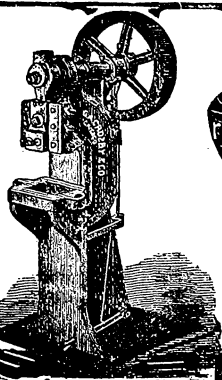


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90.08.44	12.04.50.66	22.06.42.86	32.09.35.06	42.12.27.27	52.15.19.48	62.18.11.69	72.21.03.89	82.23.96.10	92.26.88.31		
80.07.68	13.03.79.87	23.06.72.08	33.09.64.28	43.12.56.49	53.15.48.70	63.18.40.91	73.21.33.11	83.24.25.32	93.27.17.53		
70.16.88	14.04.09.09	24.07.01.30	34.09.93.51	44.12.85.71	54.15.77.92	64.18.70.13	74.21.62.34	84.24.54.54	94.27.46.75		
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70.11.04	14.03.88.64	24.06.74.60	34.09.59.31	44.12.43.02	54.15.27.73	64.18.12.44	74.21.00.15	84.23.84.86	94.26.69.57		
60.13.80	15.04.16.40	25.06.93.51	35.09.78.02	45.12.62.73	55.15.47.44	65.18.32.15	75.21.16.86	85.24.01.57	95.26.86.28		
50.16.56	16.04.44.16	26.07.21.21	36.10.06.93	46.13.01.64	56.15.86.35	66.18.71.06	76.21.55.77	86.24.40.48	96.27.25.19		
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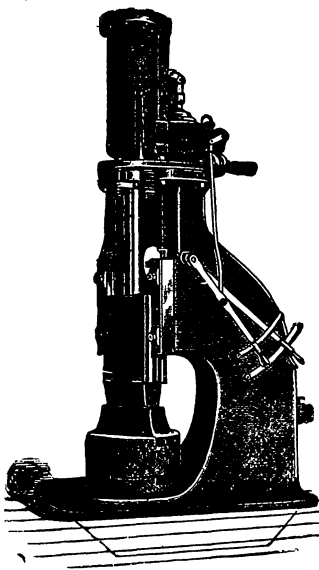
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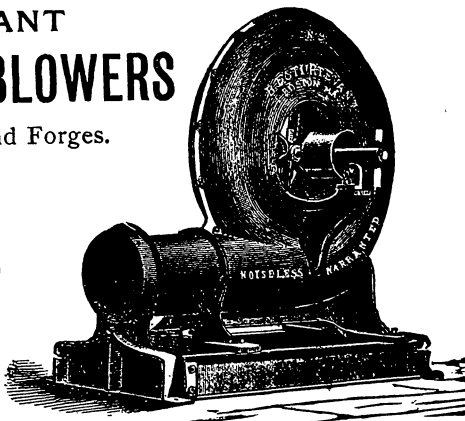
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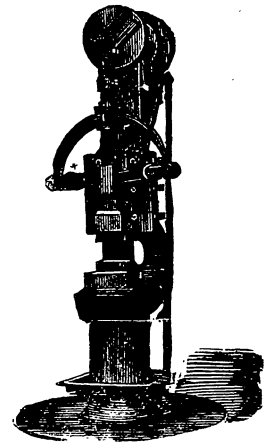
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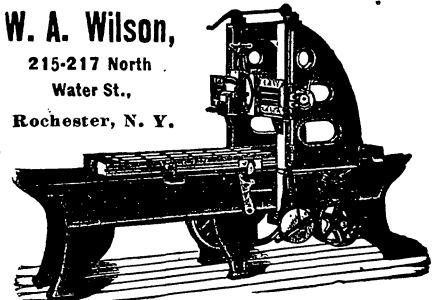
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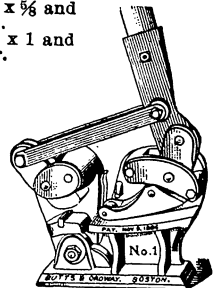
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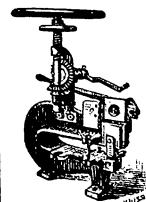
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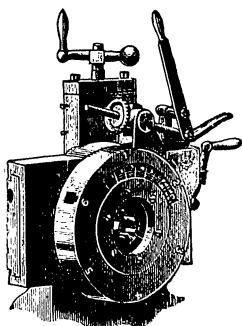
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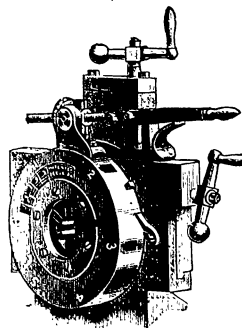
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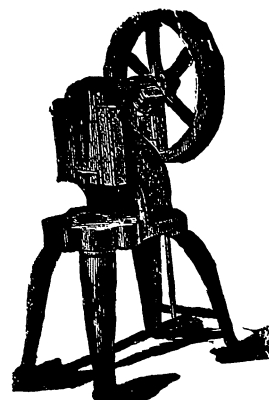
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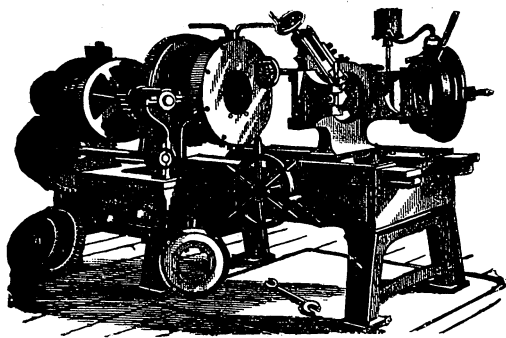
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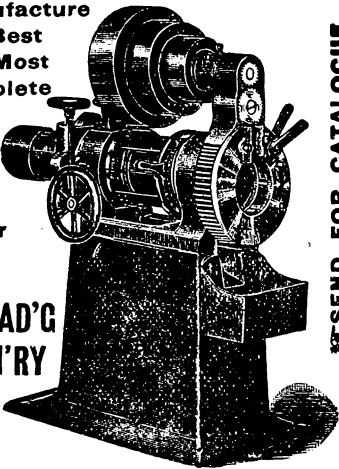
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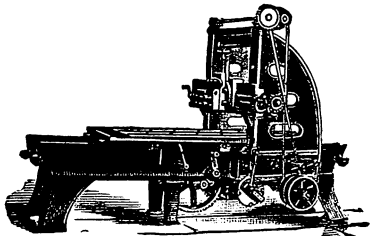
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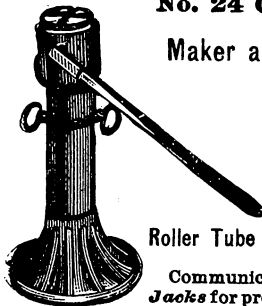
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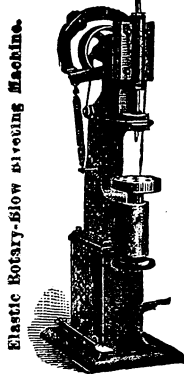
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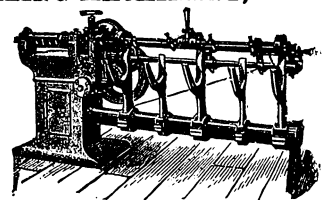
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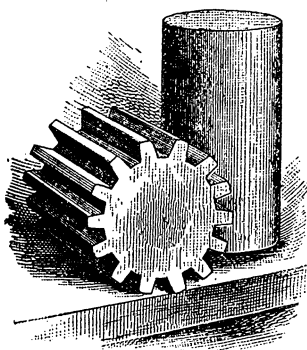


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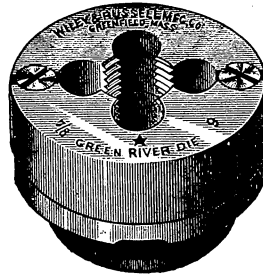
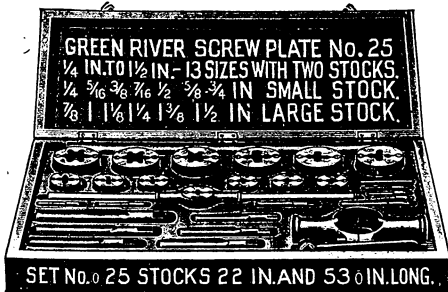
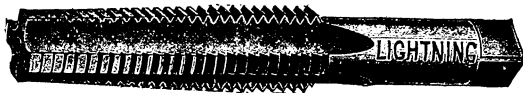
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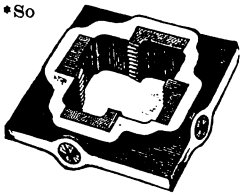
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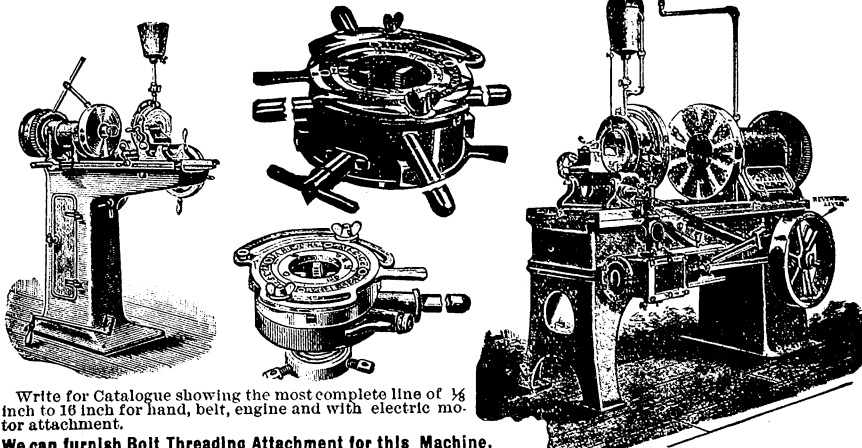
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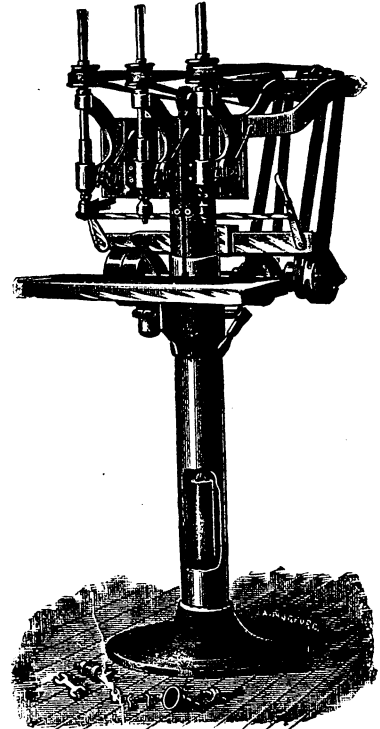


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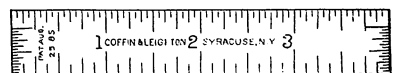
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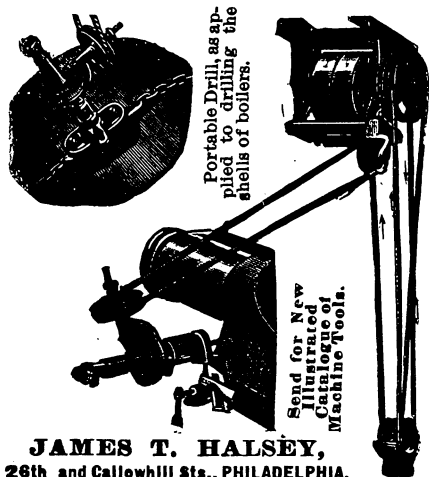
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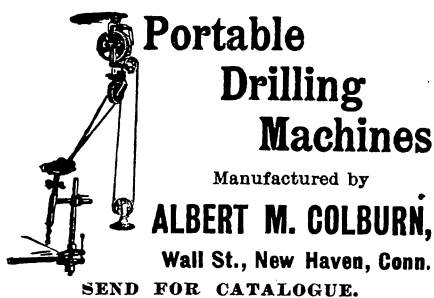
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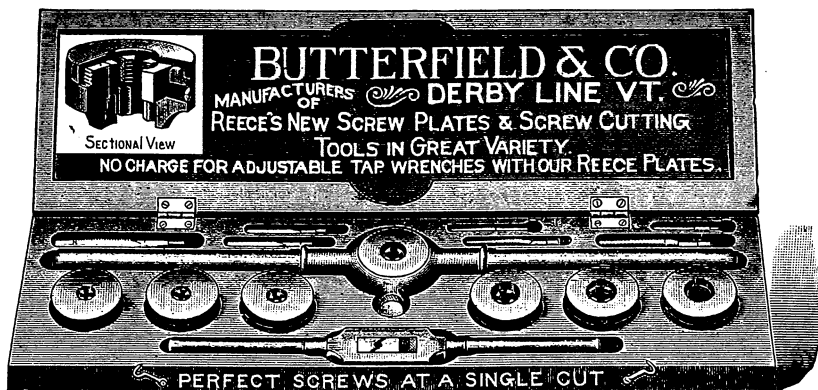
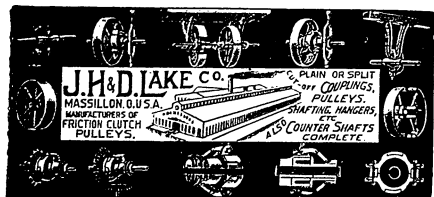
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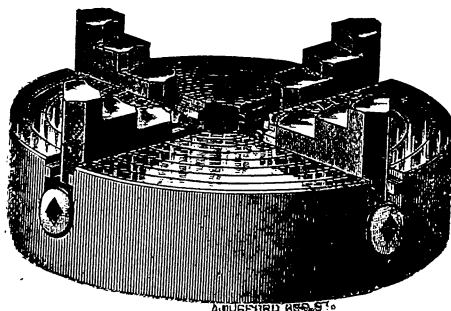
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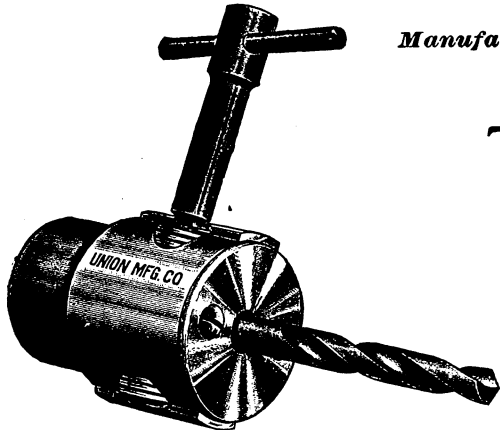
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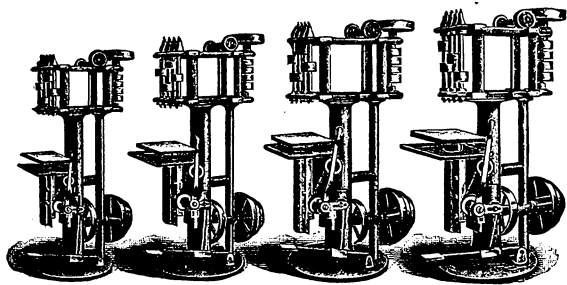


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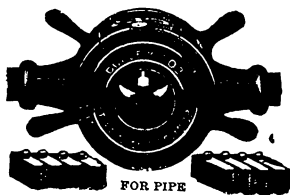
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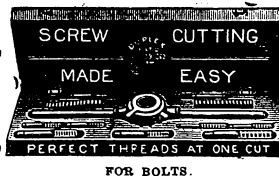
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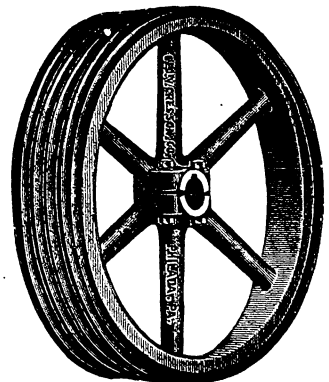
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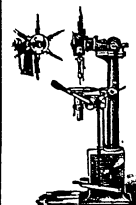
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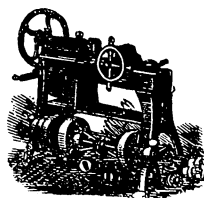
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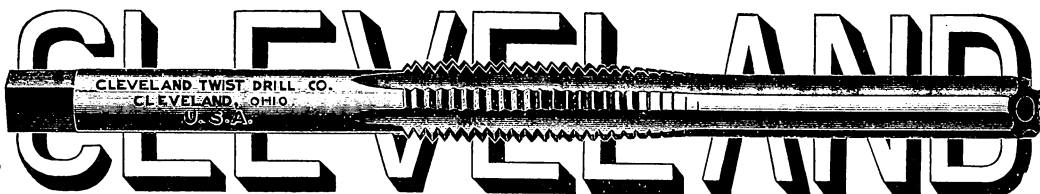
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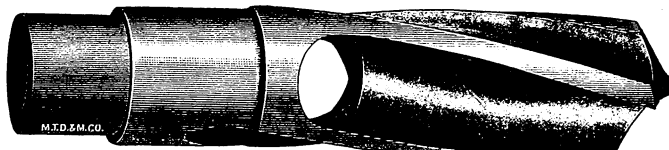


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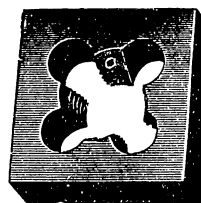
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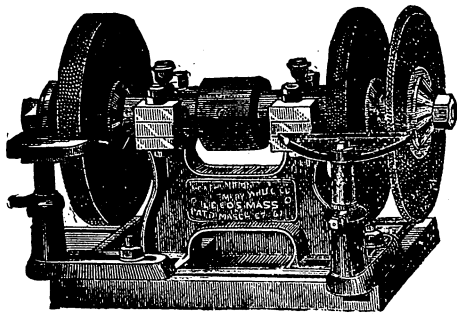
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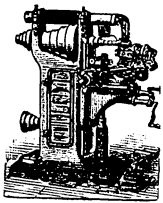
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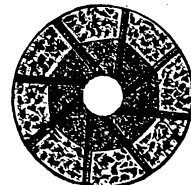
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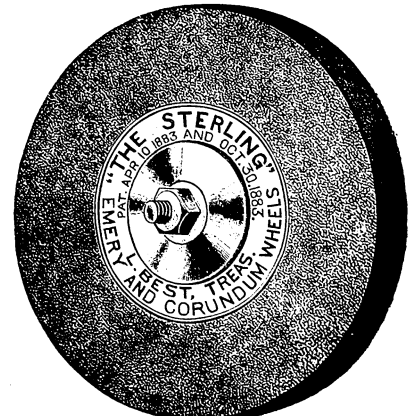
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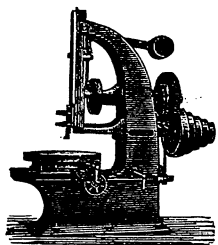
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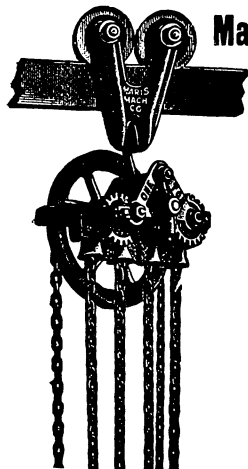
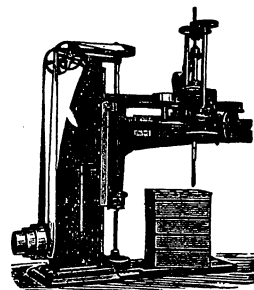


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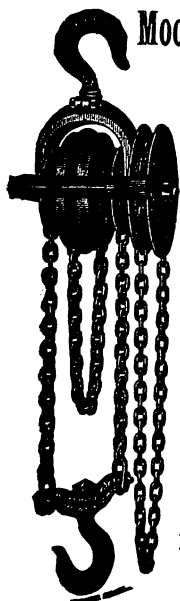
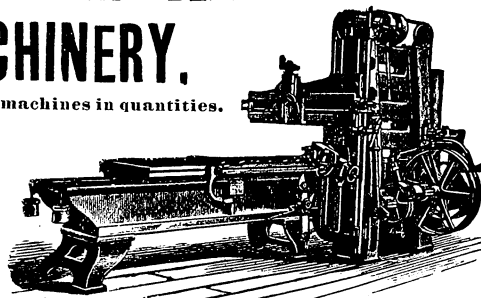
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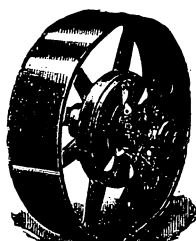
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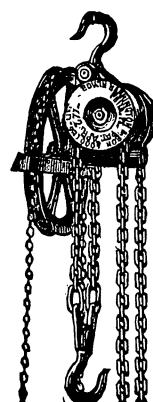
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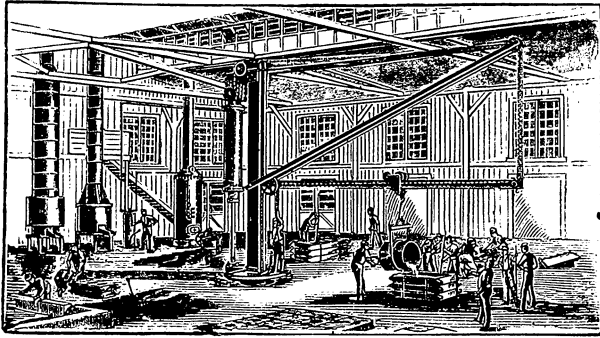
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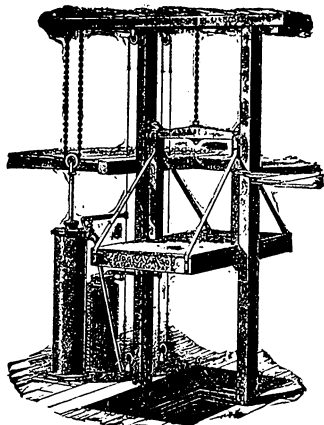
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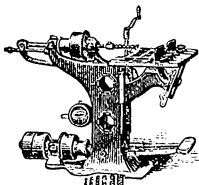
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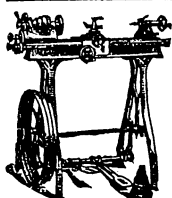
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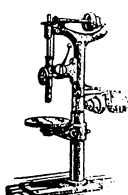
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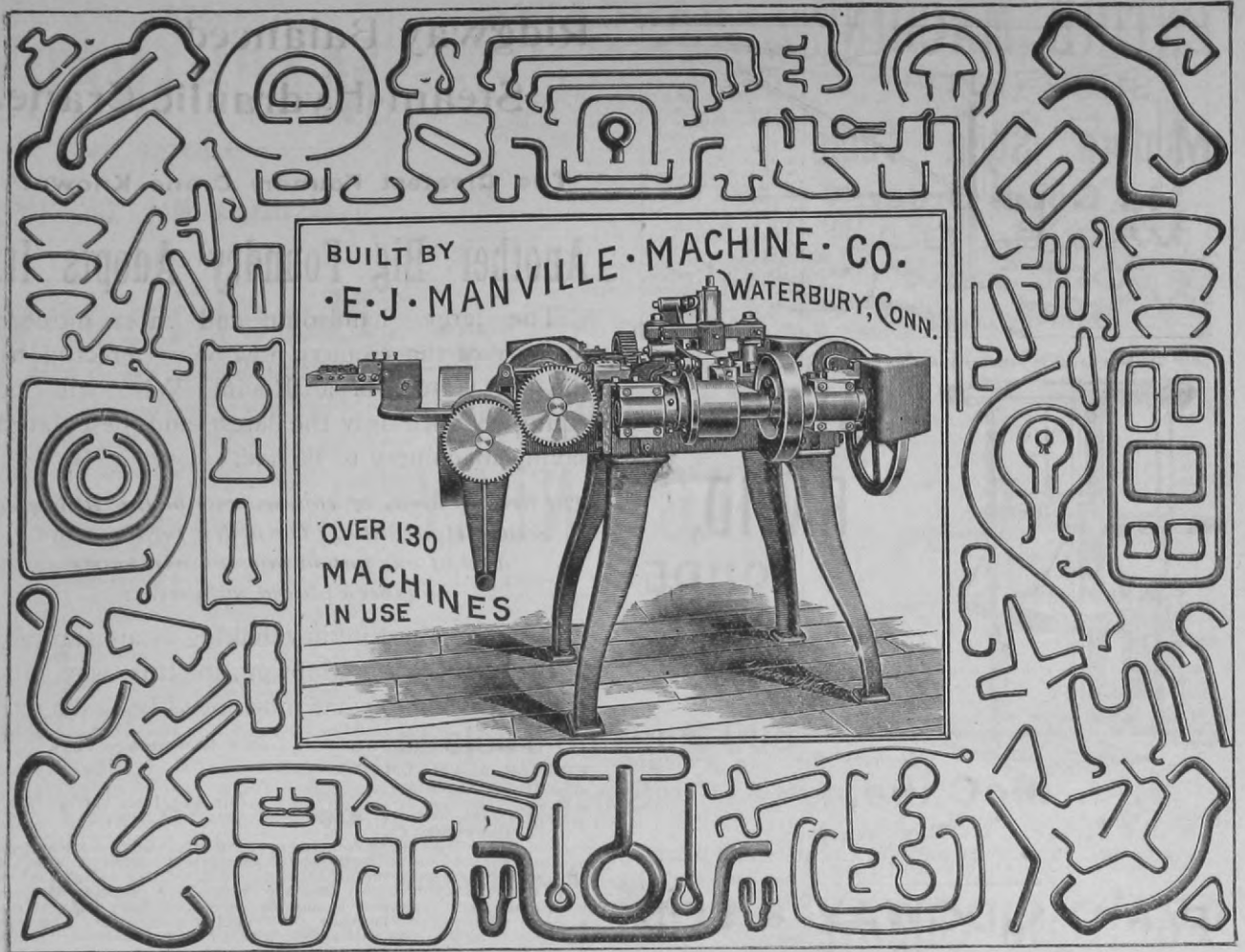
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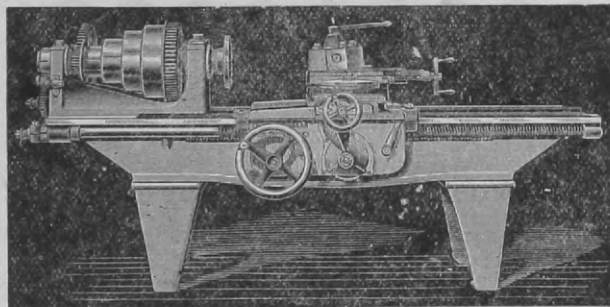
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1 Pratt & Whitney Lincoln Miller No. 3, 2d hand.
1 Muller 16 x 6 Engine Lathe, 2d hand.
1 F. E. Reed 18 x 8 Engine Lathe, 2d hand.
1 Lodge & Davis 17 x 6 Engine Lathe, 2d hand.
1 Pratt & Whitney 19 x 6 Engine Lathe, 2d hand.
1 Lodge & Davis, 21 x 8 Engine Lathe, 2d hand.
1 Dietz Gang 22 x 8 Engine Lathe, 2d hand.
1 New Haven 28 x 8 "
1 Dietz Gang 80 in. Radial Drill, " "
1 20 in. Lever Drill, new.
1 each Lodge & Davis 15 in. and 20 in. Shaper, new.
1 Steptoe 26 in. Geared Shaper, new.
1 Gear Cutter, will cut up to 40 in., 2d hand.
1 Baker Bros. Universal Saw Bench, new.
A full line of the most improved Turret Lathes, and Pulley Machinery, also Motor Gear Cylinder Boring and Triple Facing Machines.

THE LODGE & SHIPLEY MACHINE TOOL CO.,
107-113 Culvert St., Cincinnati, Ohio.

FOR SALE.

2 Double Deck Boilers about 40 H.-P. each, cheap. Hoisting Engine. Cylinder Boilers for Stacks, 30, 36 and 42 in. diameter. Round and Square Iron Tanks. Blow Offs. 5 Brass Cannons about 1400 or 1500 pounds each. Good order. All kinds of Scrap Iron and Metals on hand.

BUSSENIUS & CUNLIFFE,
12th and Washington Ave., Philadelphia.

FOR SALE.

Corliss Engine and Boilers for sale, nearly new, 250 H.-P., also a 20 in. x 36 in. Wright Automatic Engine, and a large assortment of Bundy Radiators, Quarry Pumps, Boilers, Engines and miscellaneous Machinery.

WILSON & ROAKE,
Front and Dover Sts., New York City

Great Bargains.

**Must be Sold and
Removed.**

16 in. x 30 in. Horizontal Engine.
18 in. x 36 in. Horizontal Engine.
24 in. x 36 in. Horizontal Engine.
19½ in. x 48 in. Beam Engine, with
Knowles Condenser.

Write us for what you want.

LOVEGROVE & CO.,

Third and Quarry Sts., Philadelphia, Pa.

SECOND-HAND MACHINERY.

One American Tool Co.'s No. 2 Cabinet
Turret Lathe, with slide rest. In fine
order.
One Pratt & Whitney 36-in. Gap Chuck-
ing Lathe.
One Pratt & Whitney No. 3 Lincoln
Milling Machine.
One Iron Planer, 52 in. wide, 44 in. high,
12 ft. long, with two heads.
One Springfield Universal Grinding Ma-
chine No. 3, swing 18½ in. over the
ways and take 6 ft. between centers.
Has been used but a very few times and
is practically new.
One L. W. Pond Gear Cutter, to cut gears
36 in. diameter, 5 in. face, also ar-
ranged for cutting beveled gears.
One Bullard Screw Cutting Engine Lathe,
16 in. swing, 12 ft. bed. In good order.

HILL, CLARKE & CO.,
156 Oliver St., Boston, Mass.

12 and 14 South Canal St., Chicago, Ill.

SECOND-HAND MACHINE TOOLS.

ENGINE LATHES.

1 10 in. x 5 ft. Reed.
1 15 in. x 5 ft. Flather.
1 15 in. x 6 ft. Jones &
Lamson.
2 15 in. x 7 ft. S.C. Wright.
1 15 in. x 8 ft. Fitchburg.
1 16 in. x 7 ft. Bement.
1 16 in. x 6 ft. New Haven.
2 16 in. x 8 ft. F. E. Reed.
2 16 in. x 6 ft. Prentice.
1 16 in. x 6 ft. Lodge & D.
1 16 in. x 6 ft. Perkins.
2 18 in. x 8 ft. Wm. Munzer.
1 20 in. x 6 ft. E.P. Bullard.
1 20 in. x 10 ft. Putnam.
1 26 in. x 10 ft. New Haven.

PLANERS.

1 16 in. Lathe & Morse.
Crane.
1 20 in. x 20 in. x 6 ft.
Pratt & Whitney.
1 22 in. x 22 in. x 4 ft.
Pond.
1 24 in. x 24 in. x 5 ft.
New Haven.
1 26 in. x 28 in. x 7 ft.
New Haven.
1 40 in. x 40 in. x 9 ft.
Pond M. T. Co.

DRILL PRESSES.

2 10 in. 3-Spindle Slate.
2 Garvin, Light Bench.
2 Garvin No. 2, 4-Spindle.
1 Pratt & W., 3-Spindle.
2 Pratt & W., 4-Spindle.
1 Garvin No. 4, 6-Spindle.

Also, large variety of other machines. Write for
complete list and detailed description.

THE GARVIN MACHINE CO.,

Laight & Canal Sts., New York.

WANTED.

To furnish reasonable estimates on specialties
in light metal work.
CLARK & COWLES, Plainville, Conn.
Manufacturers of Clock Trimmings, Rivets,
Springs &c.

ATTRACTIONS FOR 1894.

1 100 H.-P. Horizontal Tubular Boiler.
1 50 H.-P. Portable Boiler. Nearly new.
1 30 in. x 30 ft. Cylinder Boiler.
1 12 H.-P. Upright Boilers.
1 75 H.-P. Plain Slide Valve Engine. Fine.
1 60 H.-P. Wright Poppet Valve Engine.
1 20 H.-P. Plain Slide Valve Engine.
1 12 in. x 7 in. x 14 in. Epping & Carpenter Pump.
1 10 in. x 6 in. x 10 in. Dean Bros.' Pump.
1 10 in. x 5 in. x 12 in. Niagara Pump. Solid
Brass.
1 8 in. x 5 in. x 10 in. Delamater Duplex Pump.
5 7 in. x 3½ in. x 7 in. Cameron Pumps.
All in fine order and very cheap

THOS. P. CONARD,

206 Walnut Place, Philadelphia.

WE ARE OFFERING BARGAINS IN THE FOLLOWING PIECES OF SECOND- HAND MACHINERY.

14 x 18 High Speed Engine, 2 wheels 60 in. dia.,
14 in. face.
18 x 48 Corliss Engine, wheel 16 ft. dia., 25 in.
face.
16 x 48 Corliss Engine, wheel 16 ft. dia., 9 tons.
2 Horizontal Tubular Boilers, 5 ft. dia. x 17 ft.
long.
7 Horizontal Tubular Boilers, 5 ft. dia. x 15 ft.
long.
Smith Valve Compound Duplex Pump, 14-20 x 15
x 15.
Worthington Compound Duplex Pump, 10-16 x
10½ x 10.
Davidson Pump, 24 x 12 x 24.
500 H.-P. J. P. Witherow, Pittsburgh, Pa.,
Heater.
Edison Dynamos of 75, 150, and 300 lights, with
lamps, sockets, switches, wire, &c.
MARVIN BRIGGS, 12 Broadway, N. Y.

MACHINERY, TOOLS, &c.

Engines, all sizes, Slide Valve and Automatic.
Boilers, all sizes, Horizontal, Vertical and Locomotive.
Hoisting Engines, Portable Engines, Steam Pumps.
20 Screw Cutting Lathes, 12 in. to 24 in. swing.
20 Bement Milling Machines.
24 in., 30 in. and 36 in. Planers, 6 in., 12 in. and 15 in.
Shapers.
44 in. Radial Drill, 1¼ in. National Bolt Cutter.
Power Shears, ¼ in. Gap.
Hydraulic and Punching Presses.
10 lbs., 25 lbs., 60 lbs. hammers for belt.
¾ Pratt & Whitney cut-off machine.
Brown & Sharpe Grinding Lathe.
FRANK TOOMEY, 131 N. Third St., Philadelphia, Pa.

FOR SALE.

2 5 H.-P. Gas Engine. New.
4 H.-P. Shipman. Good as new.
8 H.-P. Horizontal. Good as new.
6 x 6 Clayton Air Compressor.
1 Steam Hammer.
1 Hand Drill.
2 9-15 Blake Crushers.
30 Grind stones 30 in. x 5 in.
1 Spike Machine (10 tons capacity daily), Al.
MANSFIELD & DUDLEY,
126 Liberty Street, New York.

Second-Hand Rails FOR SALE.

In lots to suit, and ready for delivery.

3000 tons 60 lb. Steel T Rails.
450 tons 66 lb. Steel T Rails.
800 tons 54 lb. Steel T Rails.
400 tons 50 lb. Steel T Rails.
350 tons 40 lb. Steel T Rails.
50 tons 35 lb. Steel T Rails.
500 tons 35 lb. Iron T Rails.
250 tons 30 lb. Iron T Rails.
120 tons 30 lb. Steel T Rails.
160 tons 25 lb. Iron T Rails.
140 tons 20 lb. Steel T Rails.
60 tons 16 lb. Steel T Rails.
1700 tons Johnson Girder Rails, 38, 48, 52 and 66 lb.
Rails.

All selected and in excellent condition for relaying
and only slightly worn.
Second hand selected and sound rails furnished in
specified lengths for builders' use. For prices and
particulars apply to

JOSEPH JEWKES,
Railway Equipment, Pittsburgh, Pa.

SOME BARCAINS HERE.

1 Hendey Shaper, 15 in. stroke, imp. vise.
1 14 x 6 Screw Cutting Engine Lathe. New.
1 5 in. hole in Turret Screw Machine and Counter, \$25.
2½ Hendey Cutting-off Machine. New.
1 3-Spindle Garvin Drill Press, used 1 month.
100 H.-P. Woodbury Engine. 2d-hand. Good order.
2 50 H.-P. Woodbury Boilers. Good order.
2 75 H.-P. Woodbury Boilers. Good order.
75 H.-P. Ball Engine. 2d-hand. Good condition.
Also variety of Engines, Boiler Pumps, &c.
And other machinery, new and second hand. Write
for prices. **Machinery's Supply Company,**
39, 41 and 43 Central Ave., Rochester, N. Y.

FOR SALE.

Two 80-lb. Lever Trip Hammers, about new, first
class condition, made by Williams, White & Co.
Moline, Ill., weight about 7500 lbs. each.
One 100-lb. Jenkins' Upright Cushioned Helve Ham-
mer, practically new, made by Jenkins & Lingle,
Belleville, Pa.
One set of small Rolls for Rolling Carriage Springs
and other light work.
All of the above at reasonable prices, or will ex-
change for medium sized Steam Hammers or large
Power Press.
DANIEL L. HEISKELL, Wheeling, W. Va.

CORLISS

And Other Automatic Slide Valve Engines, Etc.

Corliss.	High Speed Auto.	Horizontal Slide Valve.	Vertical Slide Valve.
10 x 20	11 x 20	9 x 24	20 x 18
10 x 24	10 x 14	10 x 12	13 x 18
16 x 42	13 x 12	10 x 24	10 x 12
23 x 36	23 x 36	11 x 20	9 x 10
26 x 48	23 x 36	12 x 18	9 x 9½
30 x 60	16 x 36	12 x 24	7 x 7
30 x 72	16 x 24	14 x 24	5 x 5

HORIZONTAL BOILERS, 3, 6 x 10; 8, 5¼ x 16; 5, 6 x
16; 3, 5 x 18; 1, 4¼ x 12, and several others.
LOCOMOTIVE BOILERS, 80, 45, 50, 100 and 150 H.-P.
One 1000 gal. Duplex Fire Pump, Brennan Crusher,
Bogardus Mill, Burr Mill, Fan Blower, Platform Scales,
etc., etc. Send for catalogue.

G. M. CLAPP, 74 Cortlandt St., New York.

PLATE MILLS

For sale, one 2 high and one 8 high 30-inch Train, will
roll heavy and light plates up to 60 in. In complete
order. Made by Garrison & Co.
MATTHEW GILL, Jr., Philadelphia, Pa.

GUILLOTINE SHEAR.

For sale, Morgan, Williams & Co. Guillotine Shear, En-
gine attached. Knife 104 inches long, will cut heavy
steel plates. (Has auxiliary shear on back.)
MATTHEW GILL, Jr., Philadelphia, Pa.

HEAVY ENGINE.

For sale, Horizontal Engine 39 in. x 72 in.; 2
Fly Wheels weighing 53 tons each.
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ROLL LATHE.

For sale, one heavy Roll Lathe made by Gar-
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40 inches. **MATTHEW GILL, Jr., Phila., Pa.**

Heavy Plate and Bar Shears, Engines,
Boilers, Pumps, Cranes, Fairbanks Testing
Machine, &c., &c., for sale by
MATTHEW GILL, Jr.,
Philadelphia, Pa.

FLOOR PLATES.

FOR SALE.—A Superior Lot of Cast Iron
Plates 2 ft. x 4 ft. They are made to avoid warp-
ing and cracking. Will sell in lots to suit.
MATTHEW GILL, JR.,
308 Walnut St., Philadelphia, Pa.

!!! FOR SALE !!!

BAKER BLOWERS, Nos. 3, 4, 4½, 5, 5½, 6, 7 and 7½
BUFFALO BLOWERS, Nos. ½, 1, 2, 3, 5, 6 and 7.
Buffalo Blowers and Heating Apparatus.
1 Corliss Band Wheel, 12 ft. x 24 in., in halves
1 No. 9 CLAYTON DUPLEX AIR COM-
PRESSOR, 22 in. Steam x 24 in. Air x 30 in.
Stroke. Bargain.

A Variety of Machinery, very cheap.
Do you want to buy or sell Machinery? If so, write
C. R. BIGELOW, Machinery Expert,
45 Day St., New York City.

LIST OF ODD MACHINERY.

For Sale Cheap.

1 "Bement" Foundry Cupola, 6
tons capacity. 1 "Peck" Drop
Hammer and Lifter, 200 pounds.
1 small Trip Hammer, 700 blows
per minute. 1 Milling Machine.
10 Foundry Rumbler, 9 in., 16 in.
and 22 in. 1 Polishing Rumbler,
22 in. x 4 ft. 2 Vertical Tubular
Boilers, 48 in. x 9 ft. 1 Horizontal
Engine, 22 in. x 60 in. stroke. 15
Cylinder Boilers, 36 in. diameter,
different lengths. 4 Porter-Allen
8 x 16 High Speed Engines. Also
1 Blast Furnace Blowing Engine.
1 16-in. Train of Rolls. Rotary
Squeezer, Shears, &c. For prices
write **G. W. SCHULTZ & CO.,**
308 Walnut St., PHILADELPHIA, PA.

FOR SALE.

Second-hand Iron Working
Machinery.

1 30 in. x 30 in. x 10 ft. Bancroft Planer.
1 45 in. Gear Cutting Machine.

New Planers.

22 in. x 22 in. to 130 in. x 120 in.,
ANY LENGTH.

The Powell Planer Co.,
Worcester, MASS.

WANTED.

To manufacture specialties and novelties of
Wire or Wire Rods. Address
"WIRE," Box No. 236,
New Castle, Pa.

SECOND-HAND MACHINERY.

4 11 in. x 5 ft. Engine Lathes, Reed and Prentice.
 2 12 in. x 5 ft. Young Speed Lathes.
 2 15 in. x 6 ft. Reed Engine Lathes, R. & F. & P. R.
 6 16 in. x 6 ft. Engine Lathes, Young, Reed, Blaisdell and Flather.
 2 18 in. x 8 ft. Engine Lathes, New Haven and Dustin.
 4 20 in. x 6 ft. and 8 ft. Engine Lathes, Bullard.
 1 20 in. x 8 ft. Pattern Lathe and Floor Stand.
 1 20 in. x 6 ft. Bullard Turret Lathe (c), Power Feed.
 4 Brainard No. 7 Millers, 2 with arm.
 1 Brainard Heavy No. 6 Lincoln Pattern Miller.
 1 Brainard No. 15 Universal Miller.
 2 Brainard No. 5 Universal Millers.
 1 B. & S. No. 1 Universal, complete.
 3 Garvin Millers, Nos. 2, 3, and 4.
 1 Blaisdell 30 in. Single Spindle Drill.
 1 Garvin 1 Spindle Profiling Machine.
 3 Sensitive Drills, Slate, 1, 2 and 3 spindle.
 1 20 in. 38 in. Wood & Laithe Gap Drill.
 2 F. & W. Drills, 1 and 2 spindle.
 6 Bench Drills, capacity 5-16 in.
 2 Suspension Drills, Pond, heavy.
 2 Punch Presses, 1 Wilder and 1 Stiles.
 2 Garvin No. 2 Wire Feed and Plain Screw Machines.
 1 Garvin Small Gear Cutter.
 1 Bullard 15 in. Stroke Shaper.
 1 6 in. B. & P. Shaper, Hand and Power.
 2 Bolt Cutters, 1 1/2 capacity.
 6 Speed Lathes, Garvin and Young.
 1 No. 4 Diamond Grinder.
 1 Forge.
 1 27 x 27 x 6 ft. English Screw Planer.
 1 3 ft. Vertical Engine Mill, 2 heads and pulley attach.
 1 30 x 30 x 8 ft. Niles Planer.
 1 Bement Axle Lathe, Single.
 1 36 in. x 18 Engine Lathe.

ALSO LARGE STOCK NEW TOOLS**THE NILES TOOL WORKS CO.,**

Eastern Branch, 136, 138 Liberty St., N. Y. City.

New York Agents PRATT & WHITNEY Co.

FOR SALE, CHEAP.

400 tons of 60 lb. rails, 200 tons of 52 lb. steel rails, 400 tons of 35 lb. second-hand iron rails with fastenings, one 4 horse-power engine and 8 horse-power boiler. Also other engines and locomotives, second-hand. Sawed and cut rails a specialty.

J. H. RICHARDSON & CO.,
Pittsburgh, Pa.

DON'T INVEST in expensive tools or machinery or let a contract before getting our estimate for making novelties or parts. Fine, difficult and accurate parts a specialty. White metal work at prices that cannot be duplicated. Inventions perfected. Models made. Secrecy and satisfaction guaranteed, and no extra charge for new ideas or improvements. To insure reply to letters of inquiry only, enclose stamp. THE H. H. FRANKLIN MFG. CO.,
Syracuse, N. Y.

ASSIGNEE SALE

—OF A—

VALUABLE PLANT.

The undersigned assignee of G. Ehrhardt & Sons, Pittsburgh, Pa., has been authorized to sell at private sale the valuable machine shop of above firm, located on line of the P. R. R., near Homewood Station, about six miles from Pittsburgh, Pa.

The plant is about three years old, and is fully equipped for the manufacture of cold saws and cold sawing machines. It has a frontage of over 300 feet on P. R. R., with a depth of 100 feet and a new side track, affording excellent shipping facilities. The main building, brick and frame, with stone foundation, is about 90 x 60 feet, and a large frame storage house stands about 60 feet from main building.

This affords a rare opportunity for anyone desirous of engaging in a very profitable business with a moderate investment. The plant can be bought as a whole, or the ground with buildings and side track can be bought separately from the machinery in use and new stock. Offers for the purchase of the plant should be made before February 5, 1894. For full particulars apply to

JUSTUS MULERT, Assignee.
Germania Bank Bldg., 421 Wood St., Pittsburgh, Pa.

AN OLD ESTABLISHED hardware house in New York, whose salesmen cover the entire United States, wants the sole agency of American manufacturers of Chains, Toilet Clippers, Locks, Files, Carpenters' Tools and similar articles. Address

"W. B. G.," No. 105,

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AGENCY WANTED.

Advertisers having an established trade with railroads, locomotive builders, machine shops, &c., desire to add a first-class agency; have ample warehouse room. Address

"A. & W.," Box 111,
office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED.**TO BUY FOR CASH.**

First-class second-hand Engine Lathes Platers, Drill Presses, Milling Machines, Bolt Cutters, and other machine tools. Address

THE LODGE & DAVIS MACH. TOOL CO.,

Cincinnati, O., U. S. A.

WIRE NAIL MACHINES WANTED.

Parties having German Press machines equal to Malmédie's C. A., or smallest size Blow machines, in good running order, for sale, will hear of a cash buyer by applying with terms to "M. W. N. M.," No. 118, office of *The Iron Age*, 96-102 Reade St., N. Y.

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We offer the following material for prompt delivery and at very reasonable prices.

500 tons Structural Steel Scrap, in good shape.
 200 tons No. 1 R. R. Wrot. Scrap.
 500 tons Machinery and Railroad Cast Scrap.
 300 tons Mixed Steel.
 300 tons Grate Bars and Retorts.
 200 tons Clean Stove Plate.
 100 tons Light Sheet Iron.
 100 tons Bundling Wire.

Correspondence Solicited.

SWARTS IRON & METAL CO.,

Chicago's Leading Scrap Iron House.

551 to 557 So. State St.,
CHICAGO, ILL

FOR SALE.

A splendid opportunity to engage in retail Hardware business. The retail department of a wholesale and retail hardware business, well established in a large Western city. If you are interested it will pay to investigate at once. Address

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FOR SALE.

Well established wholesale Hardware business in Pittsburgh, Pa. Stock at the present time though well selected will only run at about eight thousand dollars. The trade for a few years back has been running one hundred thousand a year. Should a party take this up the present owner will be willing to remain with the house until the trade is well established with the new owner. Address

"WHOLESALE HARDWARE,"

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FOR SALE.—One-half interest in one of the oldest and best known manufacturing establishments in the country, with a large and profitable trade in nearly every State in the Union, with over 1000 customers. Business established fifty years and for past six years has paid 50% annually on capital invested. Plant the most modern and best equipped of any like plant in the country. Goods handled by all hardware, house furnishing goods dealers and department stores. Object in selling is to obtain additional capital to add new lines of goods and to open up trade in foreign countries where there is a good field open. Capital required \$35,000. Address "FOREST," office of *The Iron Age* 96-102 Reade St., New York.

WANTED.

A new or second-hand 500 gallon Underwriters' Duplex Steam Pump. Address

LOCK BOX 276,

Auburn, N. Y.

SCISSORS.

A large firm at Solingen (Germany), which for the last ten years has indirectly exported to England and North America, wishes to get directly connected with buyers of forged scissors. Address offers to "E. 8465," care Rudolf Mosse, Cologne a/R.

PITTSBURGH SALES AGENCY,

J. H. HILLMAN, Manager,

No. 8 Wood St.,

Pittsburgh, Pa.,

IS NOW ENGAGED IN THE

Sale AND Reorganization

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Manufacturing Plants,

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Dealers in Coal and Iron Lands.

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FOR SALE. HARDWARE STOCK.

Good stock of Hardware, invoice \$4000, good store building with living rooms above, valued at \$2500, in a good town in Southwestern Minnesota; only hardware store in the town; good established trade of \$15,000 a year. This is a rare chance to go into business. Address

F. A. & A. J. MEACHAM,
Edgerton, Minn.

WANTED.

Old Boilers, Cast Scrap, Wrought and Steel Scrap, worn out machinery. Works at Darby, Pa. Address

JOHN W. SWANGER,
Crum Lynne, Del. Co., Pa.

WELD STEEL MAKERS.

Owner of Tube making processes seeks financial aid to complete plant and manufacture for the market. Would make a profitable department for a mill turning out Sheet and Plate. Address

"ECONOMY,"

Post Office Box 1086, New York City.

Gentleman Speaking Spanish

going to Mexico, familiar with all departments of mechanical engineering and machinery, desires to correspond with manufacturers of goods in these lines with a view of establishing an agency for handling iron products of every description adapted to the country. Address

"MEXICO,"

office of *The Iron Age*, 59 Dearborn St., Chicago.

FOR SALE.

The oldest hardware business in Northern Minnesota in one of the best towns in the State, containing about ten thousand (10,000) population. Stock is clean, well selected and will inventory about ten thousand (10,000) dollars. Reason for selling, ill health and desire to retire from business.

WILLIAM POWELL,

St. Cloud, Minnesota.

THE OPPORTUNITY OF A LIFETIME

will be offered a thoroughly reliable, enterprising man who can invest a reasonable amount of capital in the business with his services. He can be assured a good salary from a business already established that will bear careful examination. Business, wholesale and retail Furnaces and Ranges. Address for further information,

"WHOLESALE & RETAIL,"

office of *The Iron Age*, 96-102 Reade St., New York.

MANUFACTURERS' AGENCY

wishes to add another line to sell to factories in Ohio. Address "GOOD LINE," office of *The Iron Age*, 312 The Cuyahoga, Cleveland, Ohio.

SECOND-HAND

STEAM PIPE

FOR SALE CHEAP.

We have purchased approximately about 600 to 1000 tons of second hand Steam Pipe from the World's Fair. The pipe has been in use about eight months and is practically as good as new. This pipe originally cost about \$60 per ton, and consists of the following sizes: 2 in., 2½ in., 3 in., 4 in., 5 in., 6 in., 7 in., 8 in. and 10 in. It will be in all lengths. The majority will be full lengths. Will make price reasonable according to the quantity desired. Call or address

SWARTS IRON & METAL CO.,
Chicago's Leading Scrap Iron House.
551 to 557 So. State St.,
CHICAGO, ILL.

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STRUCTURAL IRON WORKS.

BIDS INVITED.

The entire Plant, fully equipped and ready for immediate operation, of the Riverside Bridge & Iron Works, situated at Paterson, N. J. (16 miles from New York City), and admirably located on the main line of the N. Y., L. E. & W. R. R., with switch connection. Area nearly 30 city lots. Plenty of skilled labor, strikes never have occurred. Facilities for handling the heaviest as well as light work. Will be sold at a great sacrifice and on easy terms. A RARE OPPORTUNITY to embark in a business with little capital that promises great results, considering the low price of iron and cheapness of capital. Address for full particulars

J. ALBERT VAN WINKLE, Receiver,

P. O. Box 34, Paterson, N. J.

N. B.—Remnant of stock of material, consisting of shapes, bars, rivets, bolts, &c., is offered for sale. Stock list can be had on application to receiver.

WANTED.

To meet party of acknowledged superior financial ability and broad gauge ideas, who would naturally advocate the adoption of every means of cheapening production, and also the adoption of all the modern approved means of securing contracts, into whose hands might safely be placed the commercial future of a most desirable business of vast capabilities, that could only hope to reach great proportions by the most liberal methods. This matter is worthy the notice of men of the highest caliber who could command the resources for putting the business in the front rank in its line, where eventually a cash capital of from two to four hundred thousand dollars could be profitably employed. Whoever could do this would receive a definite interest in an established business the advancing volume of which would be largely in their own hands. This offer is more particularly advantageous to parties already in control of an established plant including foundry. Address

"FINANCIAL,"

office of *The Iron Age*, 96-102 Reade Street, New York.

FOR SALE.

One (1) 14 x 16 Tangye Bed Buckeye Automatic Engine.
Two (2) 40 in. diameter by 12 ft. Horizontal Tubular Boilers.
One (1) 42 in. diameter by 10 ft. Vertical Boiler.
One (1) 8 x 9 Self Contained Horizontal Engine.
One (1) 10 x 24 Horizontal Side Valve Engine.
One (1) Drip Tank 24 in. diameter, 5 ft. long.
One (1) Iron Pipe Coil Heater.
One (1) 8 x 9 Upright Engine. New.
One (1) 14 x 30 Corliss Engine. New.

KEYSTONE ENGINE & MACHINE WORKS,
Fifth and Buttonwood Sts., Phila., Pa.

FOR SALE.

CRANK and GEARED SHAPERS.

Write us for Bargains.

J. STEPTOE & CO., Cincinnati, O.

FOR SALE.

An established retail Hardware business in one of the most substantial towns in Delaware County, situated on the Ulster and Delaware R. R. and commands the trade from 8 to 15 miles around. Greatest shipping point on line of road. Stock invoice \$4000. A new and modern store, large tinshop with full set Peck, Stow and Wilcox improved tools. First-class living rooms over store, also two-story warehouse at the rear of store, 30 x 60 ft., for agricultural implements and coal. Real estate worth \$8000, will sell or rent that: no competition. I have done a strictly cash business for four years and find it perfectly satisfactory, trade increasing. Have a first-class tinner, who understands all the business, and has been with me over two years; can be hired. Reason for selling, have other business. For further particulars come and see or address

C. W. MOFFATT,

Grand Gorge, N. Y.

FOR RENT.

Two-story factory building with power and elevator, adjoining iron foundry with R. R. siding; 6000 sq ft floor surface. Desirable location for machine shop or hardware specialties.

W. H. MARCH,

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FOR SALE.

An old established and successful machine tool manufacturing business located in a large city in Massachusetts. Owner must be free to attend to other business interests. Factory now running on orders. Tools, stock, etc. will be sold at inventory price. Address

"R."

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AT ONCE.

WANTED.—An Arched Press to take in 48 in. long work between Housings, of medium capacity, capable of striking up soft steel stock of No. 12 or 14 in thickness. New or second-hand, in good condition. Must be guaranteed and cheap.

CENTRAL EXPANDED METAL CO.,

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A GOOD BUSINESS FOR SALE.

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Hardware Store, will invoice about \$12,000. Cash or Bankable notes only. Splendid business. Established 1880. Good Location. Good reason for selling.

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No. 12 Murray St. and 15 Park Place, N. Y.

Peremptory Sale of Hardware, Edge Tools, &c.,

Including in part: Drawing Knives, Hatchets, Screw Drivers, Chisels, C. S. Nail, Riveting and Ball Pein Hammers, Curry Combs, Wood Screws, Files, Plumbs and Levels, &c., &c. Also over 400 cases Tacks and Nails, being the balance of this line of goods manufactured by THE STANLEY WORKS.

TUESDAY & WEDNESDAY, Feb. 6th & 7th,

AT TEN O'CLOCK,

By order of the LALANCE & GROSJEAN MFG. CO., on sixty days' time, approved paper,

Large Special and Unreserved Sale of Several Thousand Cases of Gray Enamelled Opal Ware.

Also a large line of Tinned Ware, Tea, Table and Basting Spoons, Fry Pans, &c.

TUESDAY, WEDNESDAY and THURSDAY,

Feb. 13th, 14th and 15th, at 10 o'clock

By order of the MANUFACTURERS and IMPORTERS,

Large Special and Unreserved Sale of Table and Pocket Cutlery, Carvers,

Butcher Knives, Cast Steel N. P. Scissors and Shears, Silver Plated Tea and Table Spoons and Forks, &c., &c.

The line of Cutlery to be offered at this sale will be large and desirable. Full particulars in next issue of *The Iron Age*.

For Sale.—Second-hand.

24 in. x 24 in. x 8 ft. Lodge & Davis Planer.
24 in. x 12 ft. Lodge & Davis Lathe.
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15 in. x 7 ft. Sebastian Lathe.
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Solid Grindstone Frames, Emery Grinders, &c., &c.

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ATTENTION! Merchants and Manufacturers.—We collect your past due accounts. Do not let them remain too long upon your books. Send for our draft book.

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JAS. H. GOLDEY, Treas.

CHARLES WEILAND.

I make a special business of buying and selling Job Lots of

HARDWARE AND CUTLERY.

Tools and Second Quality Files a Specialty.
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Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

AS FOREMAN, by a thorough practical foundryman; several years' experience as foreman; understands handling men; best of reference. "FOREMAN," Box 14, office of *The Iron Age*, 96-102 Reade St., New York.

A DRAFTSMAN, 27, who is a practical mechanic, would represent a manufacturing company at the International Exposition, Antwerp, Belgium; speaks English, French and German perfectly. Address "M. P.," 151 Monastery Ave., Pittsburgh, S. S., Pa.

BY CAPABLE MAN, age 26, has received a course in electrical engineering, also five years' experience in winding, testing and in installing dynamos and motors; would not object to travel for some good company or represent same in this city. Address "F.," 809 Third Ave., Detroit, Mich.

MANUFACTURERS ONLY.—Pipe and fittings preferred; young man 24 years of age desires position as salesman, having a specialty which will pay at least 50% of salary; desires opportunity from employer of earning the other 50%; active and energetic; best references from previous employer; salary \$20 per week. Address "ENERGETIC," office of *The Iron Age*, 96-102 Reade St., New York.

A WELL EDUCATED Mechanical Engineer, whose experience covers an extensive practice in engineering, manufacturing, construction, equipment, etc., and whose qualifications include designing, estimating, systematic methods of management, correspondence, energy, personal fitness, etc., desires engagement as manager, superintendent, or other responsible position; location no object. Address "W. F. Y.," care Box 589, Ravenswood, Ill.

BRICKLAYER wants position; has had 15 years' experience in building and rebuilding heating, puddling, crucible and open hearth furnaces; am well posted on all kinds of artificial gas producers, and capable of doing fire brick work in all its branches; can furnish references from past employer. Address "BRICKLAYER," office of *The Iron Age*, Rooms 503-510 Hamilton Building, Pittsburgh, Pa.

ENGINEER and draftsman, 33, married, wants a change; boilers, engines, general machinery. Address "O. C.," No. 125, office of *The Iron Age*, 96-102 Reade St., New York.

BY MAN EXPERIENCED in metal goods, manufacturers' line, novelty or staple, to sell Chicago trade on commission; brass goods preferred. "C. 16," Lord & Thomas, Chicago.

A YOUNG MAN 28 years of age, five years' experience in the wholesale hardware business, would like an outside position; competent to buy or sell; good penman and can furnish first-class recommendations. Address "M. J.," No. 125, office of *The Iron Age*, 96-102 Reade St., New York.

HAVE had thirty (30) years' experience as manager and foreman of gold, silver, zinc, lead and coal mines; was employed for four years as manager of zinc mines at Bertha, Va., under Bertha Zinc & Mineral Co.; can give best of reference. W. C. BARNETT, Sale Creek, Tenn.

SALESMAN of eight years' experience on the road want staple lines or specialties to sell on commission to the wholesale and larger retail hardware trade, in the States of New York, Pennsylvania, New Jersey, Maryland, Virginia and District of Columbia. "M. J.," office of *The Iron Age*, 220 S. 4th St., Phila., Pa.

BOOKKEEPER: by man who has had years of experience as bookkeeper, head of office, etc., in iron manufacturing business; is well versed in the details of foundry, machine and boiler shop work. Address "DETAILS," No. 18, office of *The Iron Age*, 96-102 Reade St., New York.

BY A TRAVELING SALESMAN having extensive acquaintance with jobbers of hardware and with carriage manufacturers in 23 States; thoroughly familiar with all kinds of carriage material, and some line of such goods preferred, but would handle another line; reference, past employers. Address "CARRIAGE HARDWARE," office of *The Iron Age*, 96-102 Reade St., New York.

A MANUFACTURERS' Traveling Salesman with many years' experience and well acquainted in New England and Central New York would like to add another line to the one he already has, to cut the expenses down; prefer something in hardware or shoe finders' goods; all parties are reliable. Address "SHOE FINDERS," office of *The Iron Age*, 96-102 Reade St., New York.

A FIRST-CLASS ROLLER of twenty years' experience in guide, merchant and hoop iron and steel, wishes employment; can furnish references if desired. Address "GUIDE ROLLER," office of *The Iron Age*, 509-510 Hamilton Building, Pittsburgh, Pa.

SELLING AGENCY WANTED, for blast furnace and iron and steel works products, by a gentleman having extensive acquaintance among railroads, foundries and shops. Address "AGENT," No. 111, office of *The Iron Age*, 96-102 Reade St., New York.

A MEMBER OF AMERICAN SOCIETY of Mechanical Engineers, who has had 20 years' practical experience as follows: machinist, head draftsman, erector of steam plants, engineering, estimating, contracting and office work and superintendent of large engine works, is available for responsible position. Address "ENGINE WORKS," No. 16, office of *The Iron Age*, 96-102 Reade St., New York.

MANUFACTURERS of leading goods who desire first-class representation to the wholesale and jobbing trade of the West and Northwest are respectfully invited to correspond with "SELLING AGENT," office of *The Iron Age*, 96-102 Reade St., New York.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

BOOKKEEPER and SALESMAN.—We want a young man that understands double entry bookkeeping; that is also an experienced retail hardware salesman; to the young man that is not afraid of work, and content with a moderate salary we offer a permanent position; state age, experience and salary wanted; references required. "ALLAHAN & DOUGLAS," 55 Court St., Binghamton, N. Y.

SALESMEN familiar with foreign hardware and cutlery can make favorable salary or commission arrangements; applicants must give full particulars. Address "ENTERPRISE," office of *The Iron Age*, 96-102 Reade St., N. Y.

SALESMAN.—With experience and acquaintance in Pennsylvania anthracite district, Lebanon and Cumberland Valleys; pig iron, rails and other requirements in iron and steel; entire time to be devoted to this district; state terms and references in answer. "SALESMAN," office of *The Iron Age*, 220 S. 4th St., Phila., Pa.

BOOKKEEPER WANTED.—Only thoroughly good accountants in double entry need apply. Address "GOOD ACCOUNTANT," office of *The Iron Age*, 96-102 Reade St., New York.

FOREMAN WANTED.—An experienced foreman to take charge of a large foundry in Eastern Canada; must have a practical and scientific knowledge of his business. Address, giving full particulars, "CANADIAN," office of *The Iron Age*, 96-102 Reade St., New York.

SALESMEN.—If you have ability and perseverance you can make good income, upon a most liberal commission basis, selling English's Workman's Time Recorder; write for circulars and terms, and send references. COLUMBIAN TIME RECORDER CO., 32 Frankfort St., N. Y.

BY IRON MERCHANT firm in New York, well educated, energetic young man of good address, able to push trade vigorously, who knows merchant bar and structural iron and steel trade, and also has knowledge of cold rolled and stamping material; state experience, and salary wanted. Address "VULCAN," office of *The Iron Age*, 96-102 Reade St., New York.

TRAVELING SALESMAN.—Manufacturers of a first-class line of hot air furnaces desire to engage an experienced man, well acquainted with and commanding an established trade, to represent them for the coming year; must be thoroughly capable in every respect; we are able to offer to the right party a steady position, good salary, and an excellent future. Address, with references and experience, "FOUNDRY CO.," P. O. Box 434, Dayton, O.

SALESMEN in Arkansas, Miss., Ala., Georgia, S. Carolina and Florida to sell staple line of hardware on commission. Address "EDWARDS," care E. S. ADAMS, office of *The Iron Age*, 312 The Cuyahoga, Cleveland, O.

SALESMEN visiting hardware trade to sell as a side line on commission our Unique Self Heating Hair Curler; it sells equally as well to the following dealers: Druggists, Jewelers, Bazaars, Dry Goods, News Stands, etc. Address, with references, UNIQUE NOVELTY CO., 99 to 103 Abbot St., Detroit, Mich.

SALESMEN to sell on commission to the hardware, plumbing and rubber trade the best and cheapest line of lawn sprinklers etc; see advertisement in this paper. Address ERTE & HENGER MANUFACTURING CO., St. Louis, Mo.

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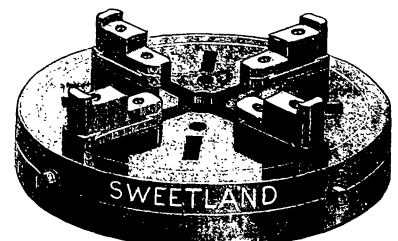
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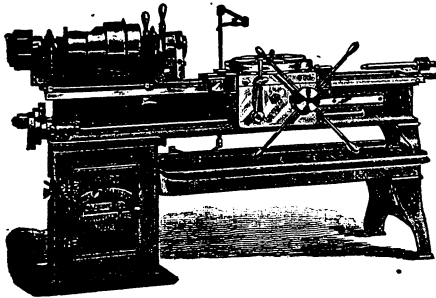
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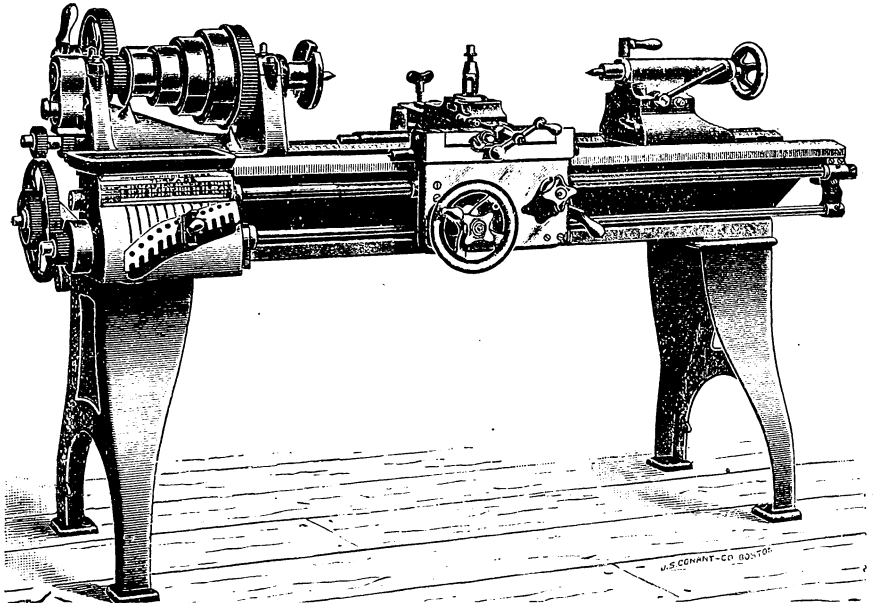
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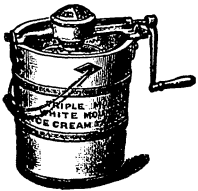
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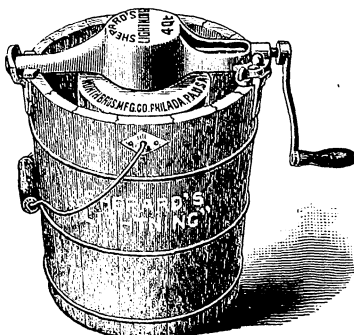
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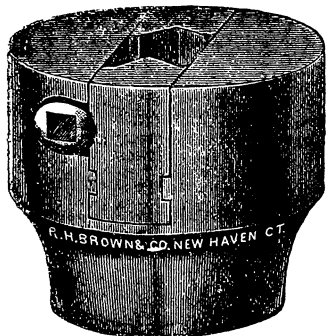
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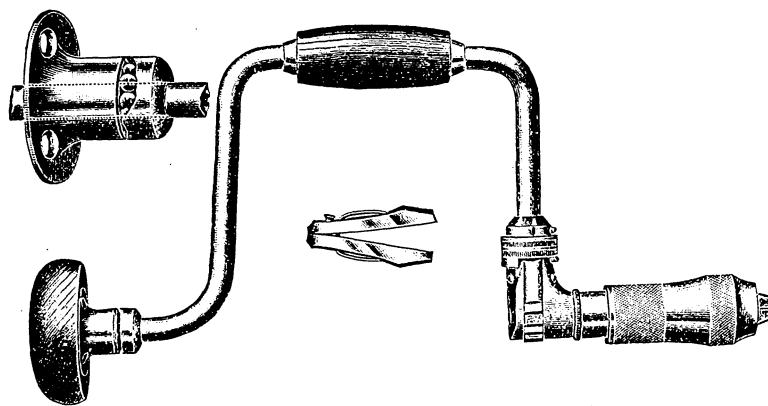
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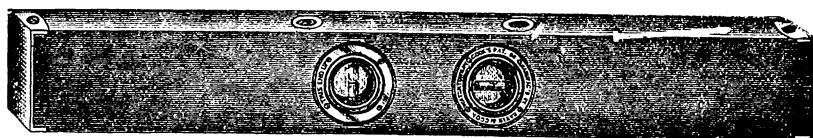
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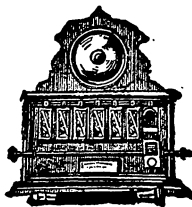


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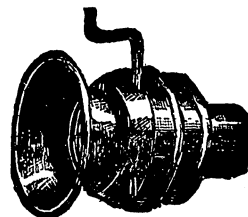
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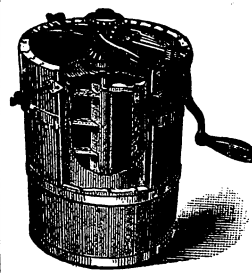
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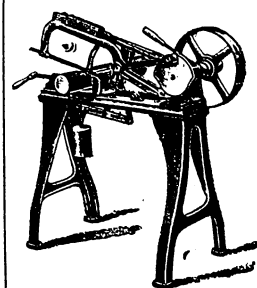
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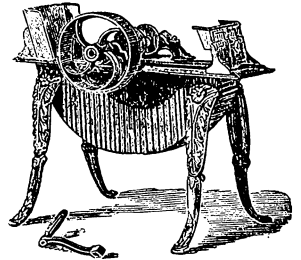
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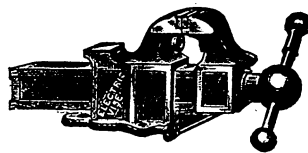
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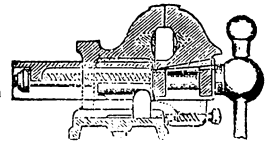


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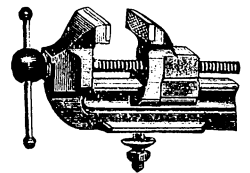
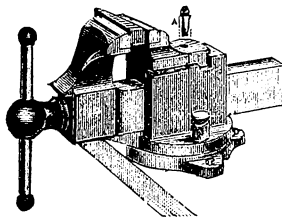
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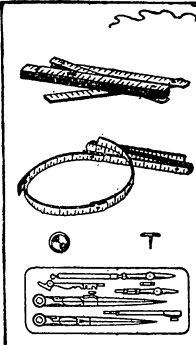
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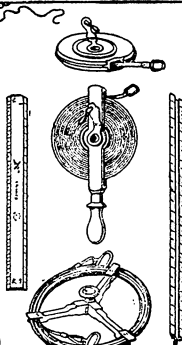
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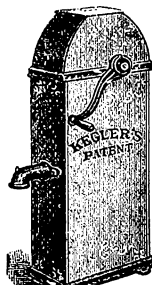


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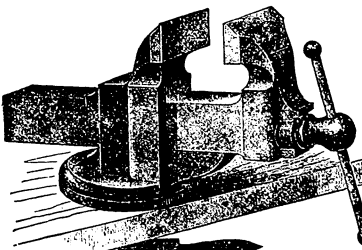


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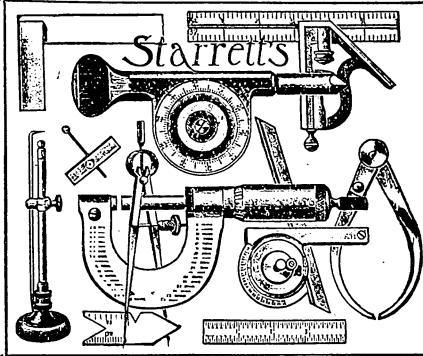
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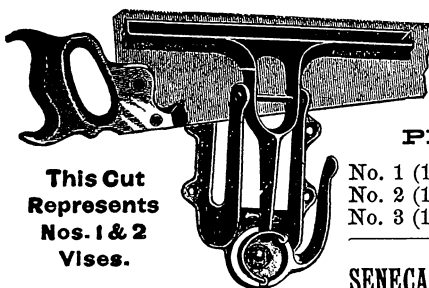
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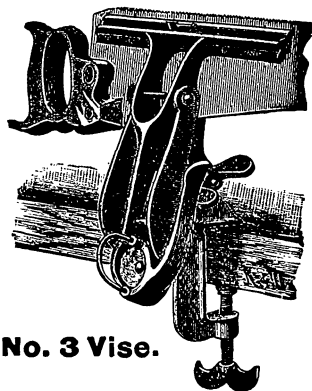
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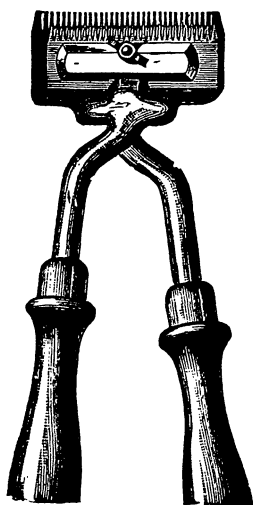
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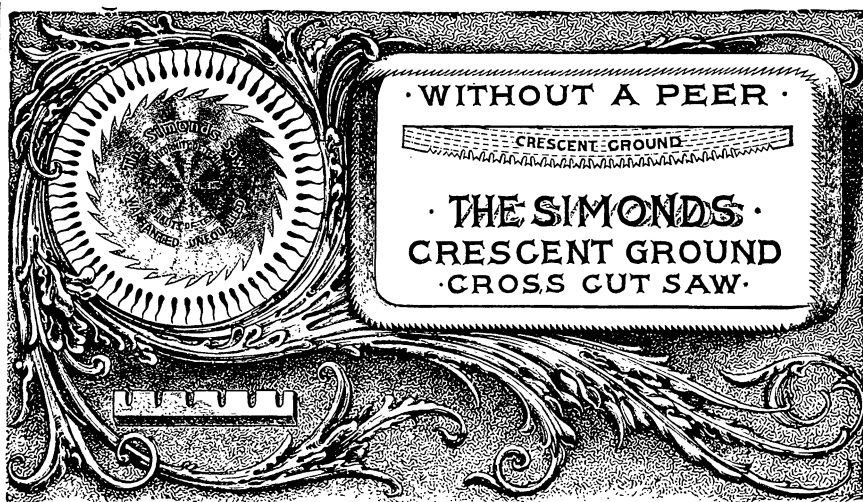
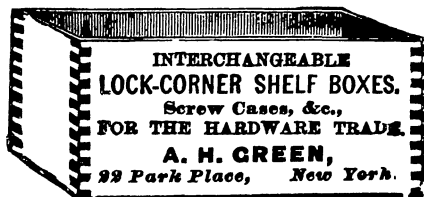
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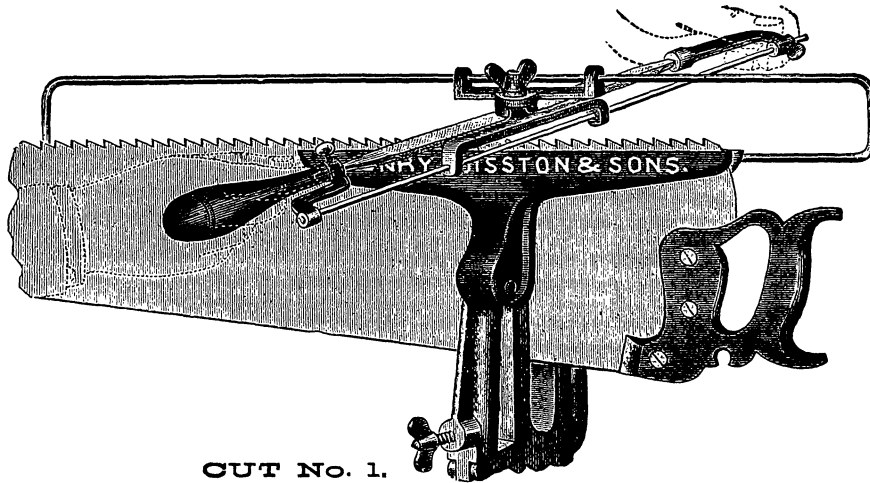
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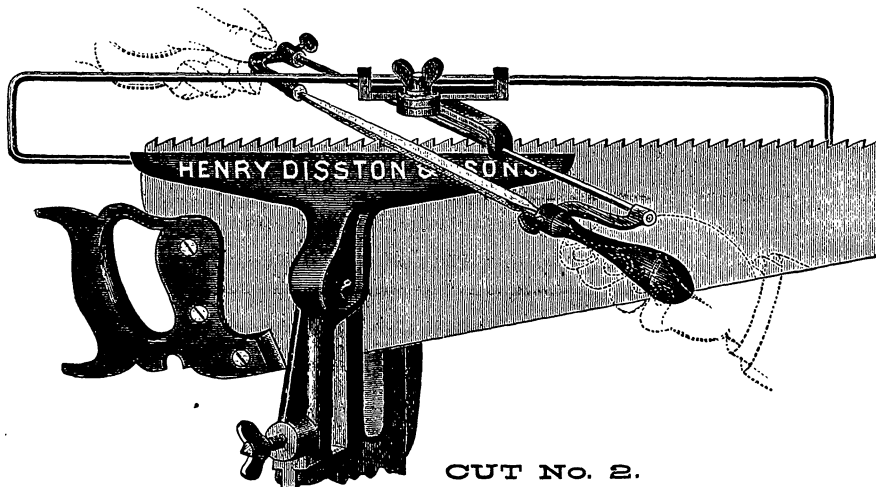
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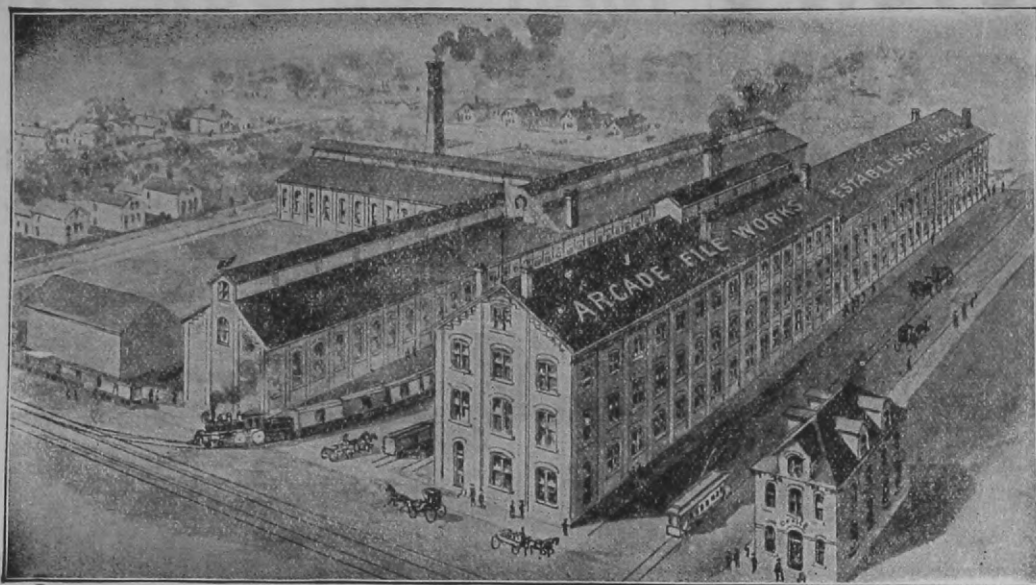
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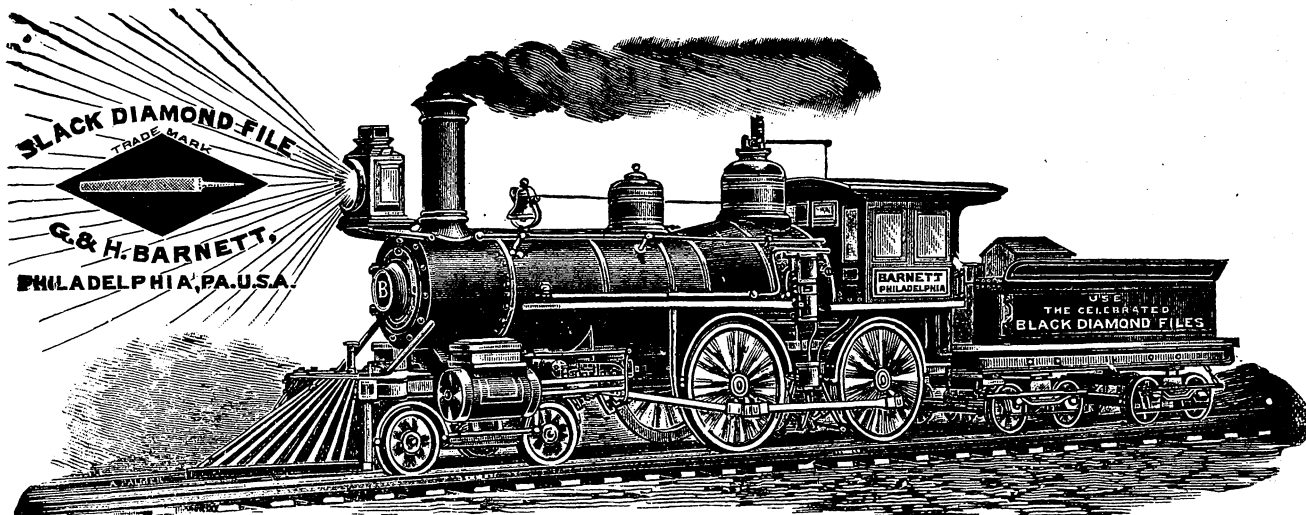
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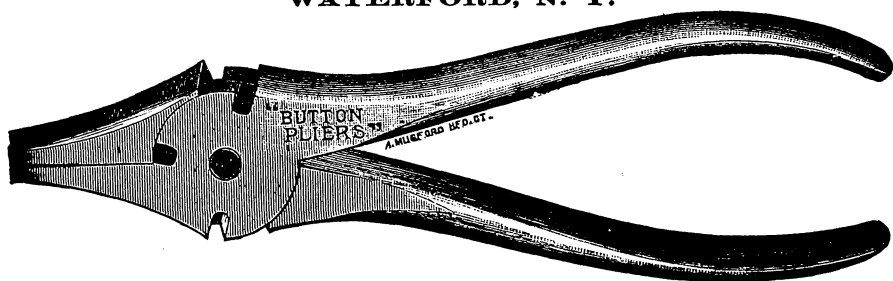
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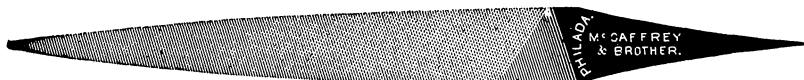
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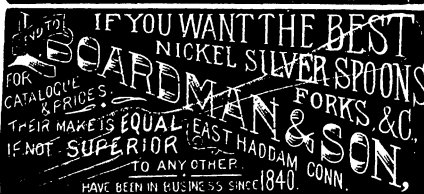
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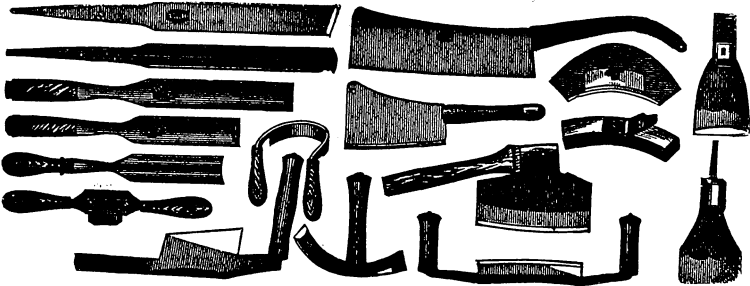
CATALOGUES AND PRICES ON APPLICATION.

We have no contract with Messrs. Hermann Boker & Co. as Agents for the sale of our goods.

HIGHEST AWARD PARIS EXPOSITION, 1889.

ESTABLISHED 1837.

INCORPORATED 1892.

**THE L. & I. J. WHITE CO.,**

BUFFALO, N. Y.

MANUFACTURERS
OF**EDGE TOOLS.**Coopers', Carpenters' and Ship Tools, Plane Irons,
Cleavers, &c. Full Line Chisels.**The New M. and P. Bit Brace.**

Strictly High Grade. 5 Sizes.



Superb finish. Oil tempered jaws. Will hold twist drills.
Steel clad head. Simplest made.
Other styles in 41 numbers. Gar-
den and Floral Sets in large
variety. Finest in the world.

SEND FOR CATALOGUES.

MASON & PARKER, Winchendon, Mass., U. S. A.**Cast Shears.**

ACME SHEAR CO.,

BRIDGEPORT, - CONN.

MARTEN DOSCHER,
Commission Hardware,

88 Chambers St., New York.

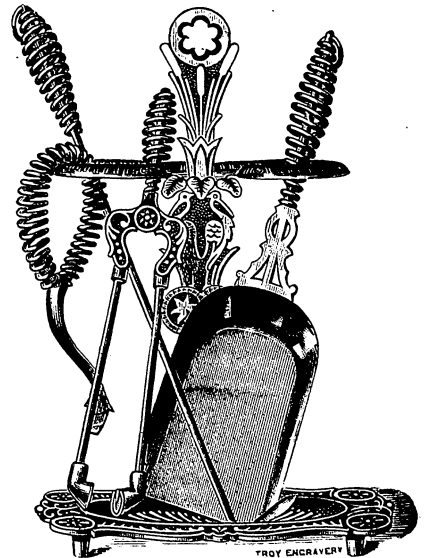
Agent—G. W. Bradley's Edge
Tools, Axes, Coopers' Tools.
Cleavers, Bush Hooks, Draw
Knives, Ship-Carpenters' Tools,
&c. Also a full stock of Planes,
Brooks' Bright Wire Goods,
Washita Stone, and Taunton
Tack Co.'s Rivets, &c.

ALASKA.

ALWAYS COLD.

Stove Trimmings.

Pokers, Lifters, Shovels, Fire Sets.



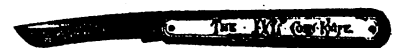
For Sale by All

First-class Jobbers in Hardware.
Made under Gaitly Patents and only by

Troy Nickel Works,

TROY, N. Y.

FRANCIS FROST & CO., Toronto, Ont.
Canadian Sales Agents.

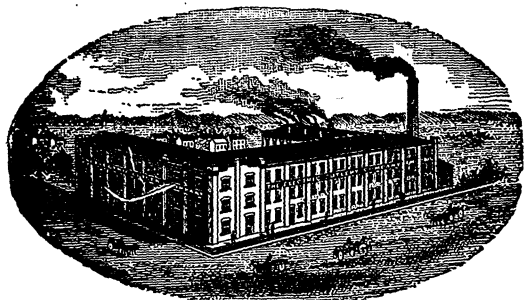
**WHEN IN WANT OF
WOSTENHOLM'S****I★XL****Knives or Razors,**

SEND TO

FRED. B. GURNEY,

116 Chambers St., N. Y.

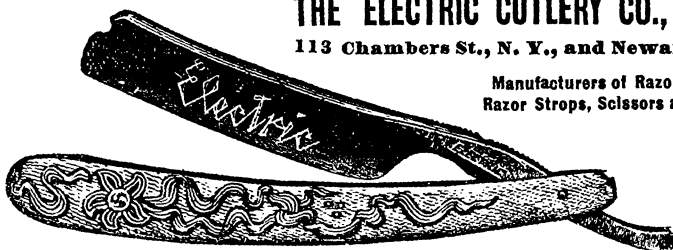
The Best Equipped Cutlery Works in the World.



FACTORY: FOURTH & DICKERSON STS. NEWARK, N. J.

THE ELECTRIC CUTLERY CO.,

113 Chambers St., N. Y., and Newark, N. J.

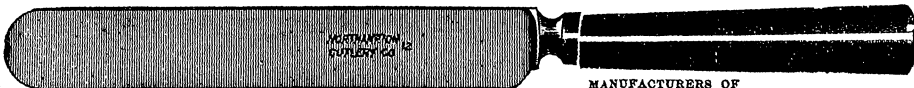
Manufacturers of Razors, Knives
Razor Strops, Scissors and Shears

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NEW YORK

SALESROOM.



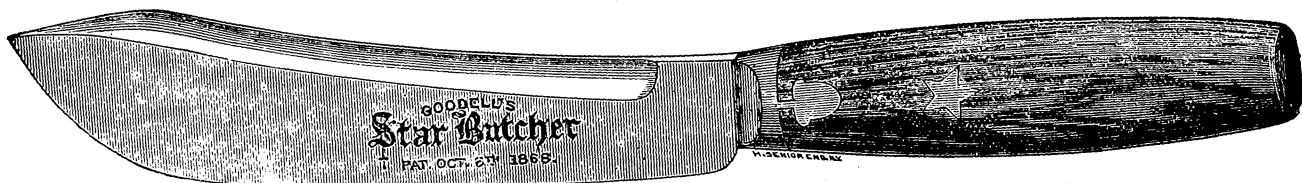
MANUFACTURERS OF

122 Chambers
Street.

TABLE CUTLERY, BUTCHERS' CARVERS, PLATED GOODS, &c.

Send for Revised Catalogue.

**THERE IS NOTHING NEW
TO SAY ABOUT THIS KNIFE EXCEPT
IT IS GROUND SHARP**

**WE DON'T KNOW HOW TO IMPROVE IT.**

Blade is made of steel especially prepared for the purpose, and it is made just right; finish excellent; shape unsurpassed; the handle just fits the hand.

GENERAL APPEARANCE IRREPROACHABLE.

Made in sizes from 5 inch to 8 inch; a strictly first-class butcher knife at a moderate price.

WE HAVE OTHER BUTCHER KNIVES,

4½ to 14 inch blade, that will cut as well, for less money. Also Table Knives and Forks, Carvers, Butcher Steels, Bread Knives, Cheese Knives, Butter Spades, Apple, Kitchen, Putty, Cigar, Shoe Knives, &c., &c., in great variety. We aim to make the best and sell at reasonable prices.

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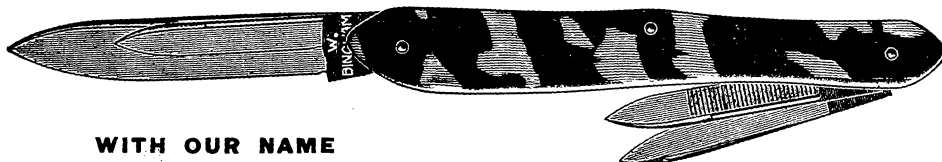
AGENTS:

THE ALFORD & BERKELE CO., 77 Chambers St., N. Y. City.

HENRY KEIDEL & CO., Baltimore, Md.

A

**Knife,
Razor,
Scissor,
Shear.**



WITH OUR NAME

**IS THE BEST
THE W. BINGHAM CO., Cleveland, O.**

That money
and 50 years'
experience can
buy.

TRADE-MARK.



All my "Anchor Brand" of Hatchets and Hammers are put up in Green Metal Edge Boxes, which are made with great care right in my own factory. The effect of a full line of my goods on your shelves in these boxes is very attractive. FAYETTE R. PLUMB, Philadelphia.



outs, Kennel Chains, &c.; also cut to lengths for manufacturers' use.

The cut represents the exact size of 6/0.

Thirteen Sizes made, 6/0 being the Largest.

The Bridgeport Chain Co.'s Triumph

Chain, made into Halters
Traces, Cow Ties, Tie-FACTORY AT
BRIDGEPORT, CONN.



We have a full line of above, which is the neatest pattern ever presented to the trade, and it is stamped



NONE GENUINE WITHOUT THIS TRADE-MARK.

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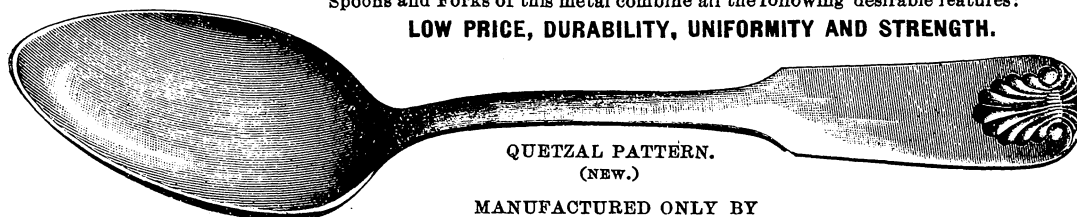
FACTORIES, HARTFORD, CONN., NORWICH, CONN., AND TAUNTON, MASS.

AZTEC COIN METAL

MADE INTO SPOONS AND FORKS.

Spoons and Forks of this metal combine all the following desirable features:

LOW PRICE, DURABILITY, UNIFORMITY AND STRENGTH.



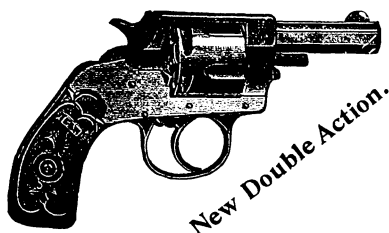
QUETZAL PATTERN.
(NEW.)

MANUFACTURED ONLY BY

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AZTEC COIN METAL has no plating to wear off. Made of solid metal. Easily kept clean.

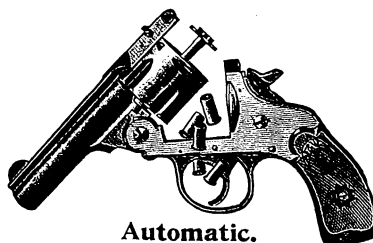


New Double Action.

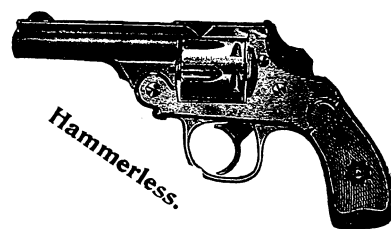
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LINE OF QUICK SELLING

REVOLVERS.



Automatic.



Hammerless.

Send for Illustrated
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Forehand Arms Co.,

—ALSO—

MANUFACTURERS OF A LARGE LINE OF GUNS
FOR THE HARDWARE TRADE,
WORCESTER, MASS.

LIGHTNING DRAIN CLEANER.

The Drain Cleaner is a hand machine used as a shovel. The dirt pan is made of No. 18 Steel 3 inches deep and 12 inches long, with vertical end in rear. It has a decided advantage over other machines in dipping water and dirt. It is also used for letting down tiling in ditches, which is very convenient and saves extra labor of standing and working in muddy ditches. The iron adjusting rod can be used with great rapidity and ease and can be adjusted to pull or push with as quick a motion as may be desired. To use it in any particular shape tighten the set screw.

For Prices and Discounts, address

BUCKEYE MFG CO.,

PARTIES DESIRING

Union City, Ind

SUPERIOR QUALITY LIGHT MALLEABLE CASTINGS

(SOMETHING MUCH BETTER THAN THE ORDINARY)

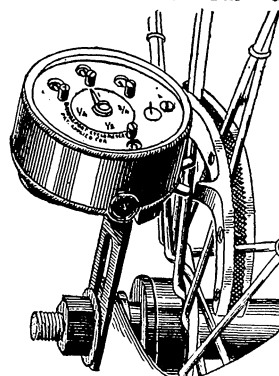
From their own Patterns—Molded True to Pattern—in Quick Time—and at Reasonable

Prices—Are Requested to send Samples, stating Quantity Used, to

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BRIDGEPORT CYCLOMETER. \$3.50.



Registers 1000 miles accurately and repeats, or can be set back to zero at any time. Perfectly Noiseless, Dust Proof and Water Proof. Nothing to get out of order and can be adjusted to any wheel. A high grade cyclometer within the reach of every bicyclist.

PRICE \$3.50 Made in two sizes, viz.: for 28-inch and 30-inch wheels. Send for catalog of sundries. Sold by all bicycle dealers.

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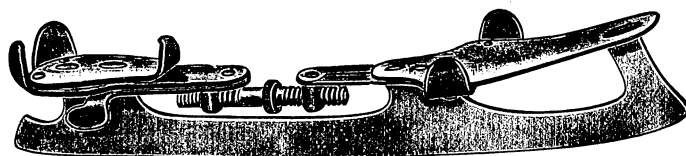
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374 Washington St., Boston, Mass.

Headquarters for Winslow Skates.

Obtain our Prices before Ordering Elsewhere.
1893-94 Catalogue Now Ready.

The SAMUEL WINSLOW SKATE MFG. CO., Worcester, Mass., U.S.A.



The most extensive Skate Factory in the World.

Monarch Bicycles

Are the Best in the World. Over 6000 Riders will tell you so.

You can make more money on the sale of a

Monarch Bicycle

Than on a car load of nails.

Strictly High Grade. At Moderate Prices.

Finest Material. Elegant Designs.

Workmanship Unsurpassed.

Awarded Special Medal for General Excellence
by The World's Columbian Exposition.



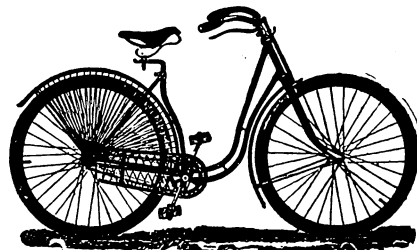
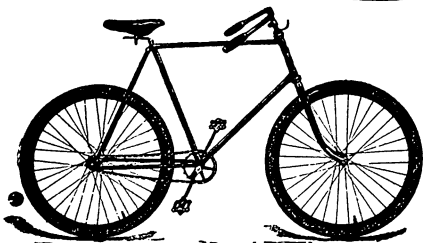
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\$90.00, \$100.00 and \$125.00.

Ranging in weight from 25 to 34 pounds.

Send for advance sheet of Catalogue.

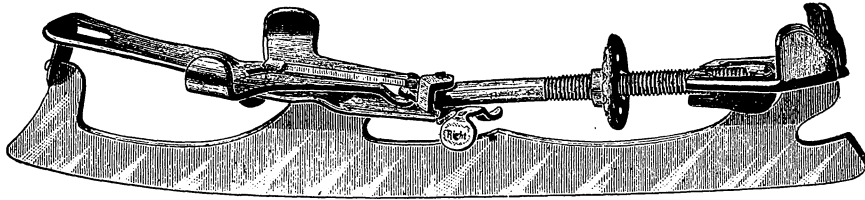
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Retail Salesroom, No. 280 Wabash Avenue.

THE LONG REACH SKATE

has stood a practical test for eight years and is absolutely without a rival in the market.



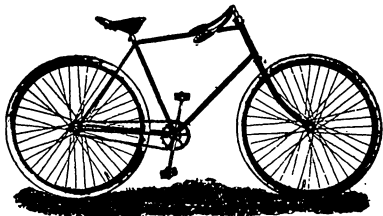
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THE JOHN P. LOVELL ARMS CO., Boston, Mass., U. S. A.

WESTERN WHEEL WORKS.

BICYCLE

From \$20



MANF'TRS

to \$135.

MOST COMPLETE LINE MADE.

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SICKELS, SWEET & LYON,

Wholesale Hardware.

Office, 35 Barclay St. Warehouse, 40 Park Place, New York.

N. Y. AGENTS FOR

WINSLOW SKATES.

Eagle Files.

Union Steel Screw Co.'s Screws.

Orders for Skates should be placed early. Shipments from factory or New York as preferred.

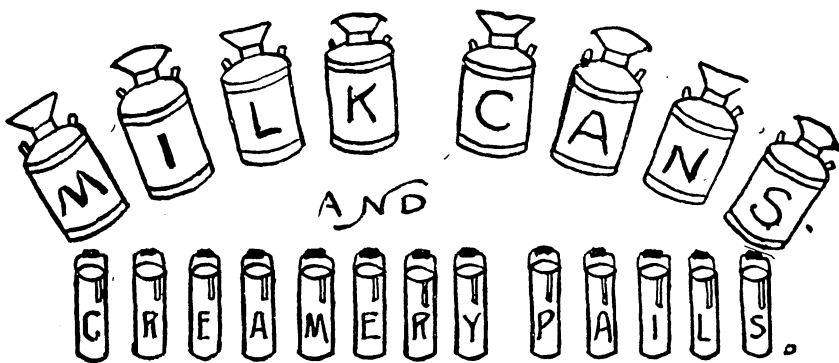
Fall Catalogue No. 6 Issued September 1st.

SICKELS, PRESTON & NUTTING CO.,

Wholesale Hardware and Tinnern's Stock.

N. Y. Office as above.

DAVENPORT, IOWA.



MILK CANS MADE UP.

MILK CAN STOCK.

CREAMERY PAILS MADE UP.

CREAMERY PAIL TRIMMINGS

Railroad Milk Cans, City Milk Cans, Factory Cans.

Illustrations and Prices sent upon application.

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BUFFALO, N. Y.

C. SIDNEY SHEPARD & CO.,
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Proprietors of the BUFFALO STAMPING WORKS.



To Make a Bull's Eye

In Your Business or at the Range?

If you deal in ARMS or AMMUNITION or shoot a Rifle, Pistol or Shot Gun, you will make a HIT by sending for the IDEAL HAND BOOK.

IDEAL MFG. CO., New Haven, Ct., U. S. A.

Please mention *The Iron Age* when you write.



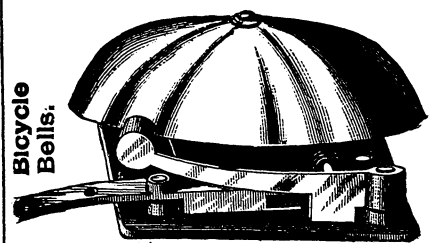
Bicycle Locks.

Bicycle Bells.

Especially Low Prices.

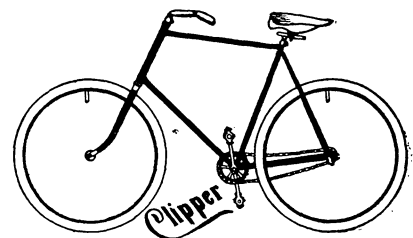
We manufacture hardware specialties of all descriptions to order.

HAINES & ZIMMERMANN, 407 Cherry St., Phila.



BEVIN BROS. MFG. CO., Easthampton, Conn.
Manufacturers of

Sleigh Bells, House, Tea, Hand, Gong Bells, &c.



Clipper Bicycles

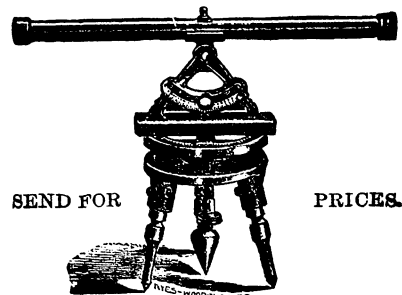
are built to please the dealer and rider.

Are you in the bicycle business? If not, you can make it pay to handle Clippers. Buy direct from the manufacturer and save the jobbers' profit. It will add considerable to your bank account. We want responsible dealers only. We may be able to interest you, in fact we are sure of it. Our policy is a protective one, and will please you. It protects against Scalpers and "Curb Stone Brokers."

Grand Rapids Cycle Co.,

Grand Rapids, Mich.

ARCHITECTS' & CARPENTERS' TRANSIT,



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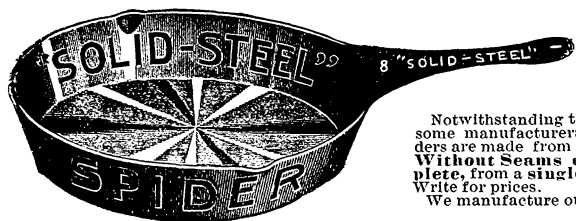
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C. F. RICHARDSON & SON, Athol, Mass.

Manufacturers of Iron Levels

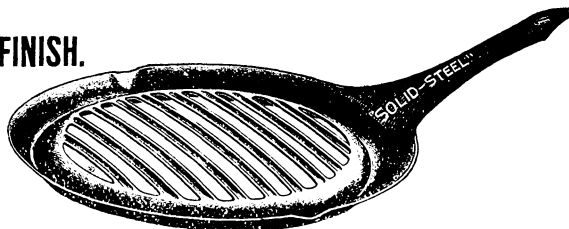
and Leveling Instruments.

"SOLID-STEEL" SEAMLESS HOLLOW WARE.



No Seams, no Rivets in "Solid-Steel" Ware.

BRILLIANT FINISH.

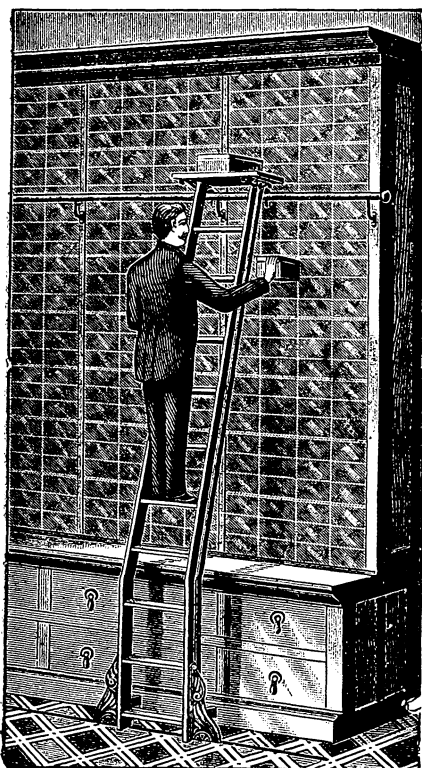


Made without Seams or Rivets.

Notwithstanding the claims made by some manufacturers' agents our spiders are made from Wrought Steel. Without Seams or Rivets. Complete, from a single piece of metal. Write for prices. We manufacture our own goods.

The Cleveland Stamping & Tool Co., Cleveland, O.

We do Light and Heavy Stamping and Blanking. Also build Dies and Stamping Machinery.



FLOOR TRACK BICYCLE LADDER.

Highest Award Columbian Exposition.

No other Ladder Service can approach the "Bicycle" in ease and convenience of operation. Compared with others they work like a bicycle beside a lumber wagon.

Can be applied to any kind of shelving made. See this space next week for other styles. Send for Illustrated Catalogue and prices to

THE BICYCLE STEP LADDER CO.,
50 State street, Chicago, Ill.

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PURE ALUMINUM COOKING UTENSILS

Meeting with such universal appreciation, we think it to our interest to appoint **ONE** responsible firm of Hardware Merchants in **EACH** town and city as our sole agents.

ILLINOIS PURE ALUMINUM CO.,
LEMONT, ILLINOIS.

Manufacturers of Sheets, Medals, Utensils.

THE KNAPP & COWLES MFG. CO.,
BRIDGEPORT, CONN.

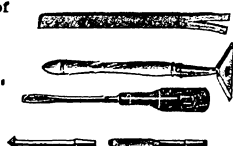
Makers of a large line of

STANDARD

Hardware Specialties.

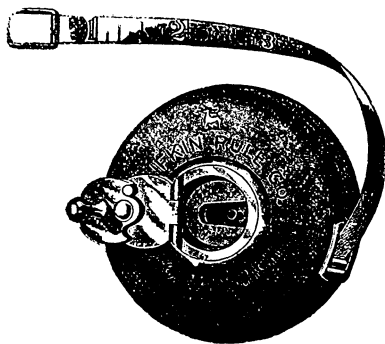
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K Catalogue.



"RELIABLE"

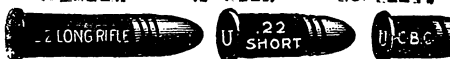
Steel Measuring Tapes.



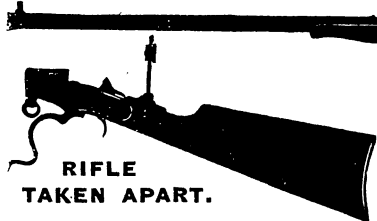
Entirely new. Handle or crank when closed is perfectly flush with leather case. Opens by pressing button on opposite side and folds out double, giving increased leverage. Best and most convenient steel tape on the market. Fully guaranteed. Will send samples on approval. We carry a complete stock of our goods at our New York Office, 20 Murray St.

LUFKIN RULE CO., Saginaw, Mich.

A Triumph in Small Bore Rifles. STEVENS' "FAVORITE" RIFLE.



Made for the 22 or 25 Rim Fire Cartridge.



RIFLE
TAKEN APART.

WEIGHT, 4½ POUNDS.

22-INCH BARREL.

LEVER ACTION LIKE SHARPS.
TAKEN APART IN TEN SECONDS.

IT IS SIMPLY IMPOSSIBLE

TO MAKE MORE
ACCURATE SHOOTING BARRELS
THAN ARE ON THIS RIFLE.

- No. 17. Plain Open Sights.....\$12.50
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No. 19. Lyman Peep, Open Back, and Lyman Front Sights, 17.00

A 60 Page Catalog showing our full line of Fire Arms with **TRADE PRICE LIST** sent with pleasure to all dealers.

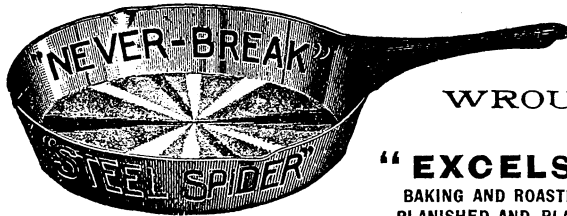
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P. O. Box 5729.

Chicopee Falls, Mass. U. S. A.

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"MIRROR POLISH," the only Perfect Plain Steel Finish.

"NEVER-BREAK"

WROUGHT STEEL COOKING UTENSILS.

MIRROR POLISHED-TINNED-PORCELAINED.

"EXCELSIOR"

BAKING AND ROASTING PANS,
PLANISHED AND PLAIN STEEL.

"PURITAN"

COOKERS, COFFEE POTS AND
OTHER SPECIALTIES.

"IDEAL"

BRASS, BRONZE, NICKEL UMBRELLA STANDS, CUSPIDORS,
ETC., ETC., ETC.

THE BRONSON SUPPLY CO.,
CLEVELAND AND NEW YORK.



No. 3

Globe Street Lamp.

Light your Streets and Driveways. The S. G. & L. CO. Tubular Globe Street Lamp

IS THE Best Street Lamp Manufactured.
Equal to the best Gas Light.
Will not Blow Out in the Strongest Wind.
Will not Smoke.
Will not Freeze.
Automatic Extinguisher.
Outside Wick Regulator.
Will Burn Four Hours for One Cent.

MANUFACTURED BY

STEAM GAUGE AND LANTERN CO.,

SYRACUSE, N. Y.

Western Branch, 25 Lake St., Chicago, Ill.

Buhl Tubular Headlight.

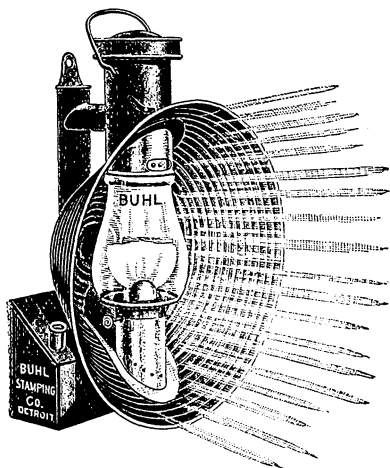
IMPROVED FOR 1893-94.

The most brilliant light at least expense for Halls, Factories, Barns, Boat Houses, Traction Engines, etc.

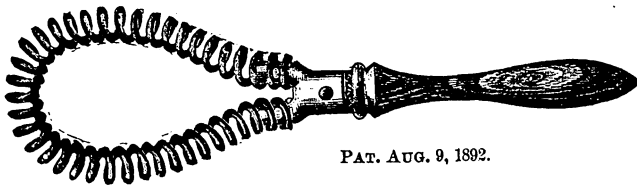
Buhl Stamping Co.,
DETROIT, MICH.,

MANUFACTURERS OF

TUBULAR LANTERNS, STEEL MILK CAN STOCK and BIRD CAGES.



THE BOSS DUST BEATER.



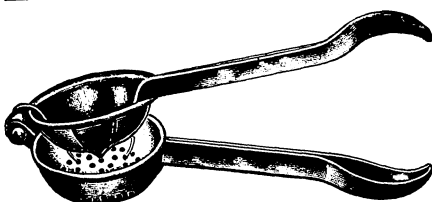
PAT. AUG. 9, 1892.

NEAT, DURABLE, AND DOES THE BUSINESS.

For removing dust and filth from Clothing, Upholstered Furniture, Rugs and Carpets it is just the thing. Will raise the nap and so improve the appearance. Will not, like other Dust Beaters, leave marks, nor tear the fabric. The coil is of steel wire secured in a malleable iron socket and attached to an enameled wooden handle. Just what everybody wants.

Retail Price, 25 Cents. Sent by Mail, 35 Cents.

PEABODY & PARKS,
Manufacturers, TROY, N. Y.



Do you make Lemonade?

If so you want our Squeezer. Positively the best. Suitable for any size Lemon. Write for samples, catalogue and prices.

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John Chatillon & Sons,

85, 87, 89, 91, 93 CLIFF ST., NEW YORK.



ESTABLISHED
1835.

SEND FOR
PRICE LIST.

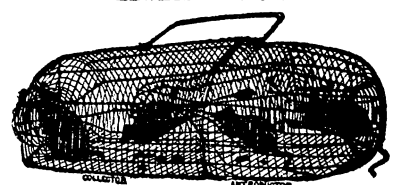


Sole Agents for
Foster Bro.'s Butchers' Cutlery.



John Chatillon & Sons, N. Y.

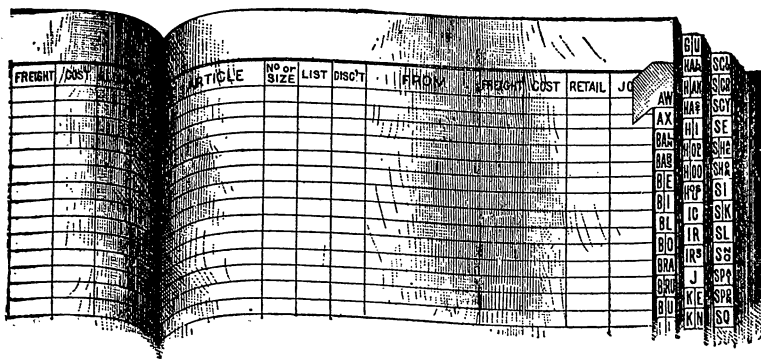
GENUINE **MARTY** RAT AND MOUSE TRAPS
ALWAYS IN STOCK.



THEY DO THE WORK.
Orders solicited. Prices on application.
BURDITT & WILLIAMS,
20 Dock Square, Boston, Mass.
—SOLE AGENTS AND IMPORTERS.—

The Iron Age Hardware Price Book E.

SECOND EDITION, REVISED AND ENLARGED, WITH MULTIPLE INDEX (Patent Pending).



AD GU SC₀
AN HA_M SCR
AU HAN SCY
AW HA_S SE
AX HI SH_E
BA_N HO_L SH_R
BA_S HOO SI
BE HO_S SK

Fac-Simile of Indexing.

SIZE.—The book is 7 x 10 inches (much larger than Price Books A, B, C, or D), 350 pages.

PAPER.—The paper is the celebrated Crane's heavy ledger paper, tough and strong, permitting frequent changes and erasures.

BINDING.—The binding is of the very best quality—flexible seal grained leather.

INDEX.—By means of the arrangement shown in the cut the index applies to every page (except Supplement) and permits reference to any article at a single motion. This greatly facilitates the use of the book, avoiding the troublesome turning from page to page which is necessary in connection with other Price Books. It has been prepared with great care, and it is believed that it provides a place for every article in the Hardware line.

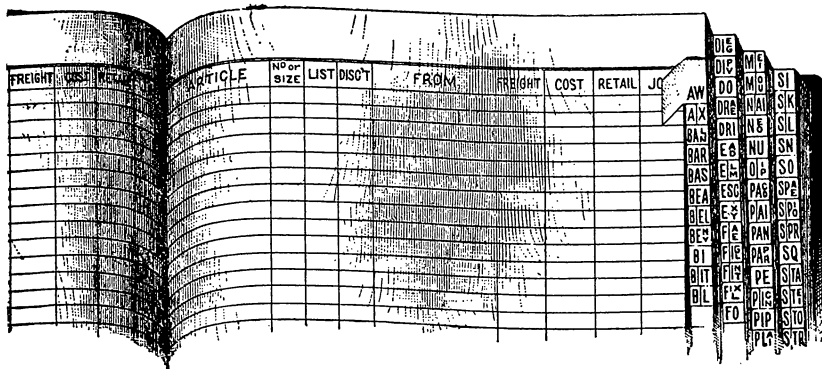
ARRANGEMENT.—The book is arranged to keep a complete record of prices on a single page, the width giving sufficient room.

SUPPLEMENT.—A 40-page Supplement is provided to give room for supplemental quotations, memoranda, tables, &c.

THIS BOOK IS ISSUED IN ONLY ONE EDITION, PRICE, \$5.00.

The Iron Age Hardware Price Book F.

WITH MULTIPLE INDEX (Patent Pending).



AD DI_E ME SI
AN DI_V MO SK
AU DO NAI SL
AW DR_E N_O SN
AX DRI NU SO
BA_N E_A O_P SP_E
BAR E_M PA_D SP_O
BAS ESC PAI SPR

Fac-Simile of Indexing.

SIZE.—The book is 8 1/4 x 11 inches (much larger than Price Books A, B, C, D or E), 556 pages.

PAPER.—The paper is the celebrated Crane's heavy ledger paper, tough and strong, permitting frequent changes and erasures.

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INDEX.—By means of the arrangement shown in the cut the four rows of index applies to every page (except Supplement) and permits reference to any article at a single motion. This greatly facilitates the use of the book, avoiding the troublesome turning from page to page which is necessary in connection with other Price Books. It has been prepared with great care, and it is believed that it provides a place for every article in the Hardware line, and gives ample space for recording prices.

Sufficient space has been provided for large lines of goods such as Axes, Bits, Springs, etc., by allowing four pages to such indices, instead of two pages, as for lines of goods requiring less space. This is accomplished, as in AX for example, in Book F by having a short tab with the letter A on the tab on the first leaf, and AX on the tab on the second leaf. The A on the first leaf is directly over the A on the lower leaf, so that the index reads AX whether looking at both leaves together, or at the lower one only.

The four rows of index tabs are printed in gold letters on black Russia leather. The tabs are securely fastened on both sides of each page, making a handsome and durable index.

ARRANGEMENT.—The book is arranged to keep a complete record of prices on a single page, the width giving sufficient room.

SUPPLEMENT.—An 80-page Supplement is provided to give room for supplemental quotations, memoranda, tables, &c.

THIS BOOK IS ISSUED IN ONLY ONE EDITION, PRICE, \$7.50.

Advantages of Multiple Index Price Book.

A SPECIAL feature of the books is the arrangement of the index characters, which, instead of being alphabetical, are arranged with special reference to the classification of Hardware goods, each index character giving the first two or three letters of the names of Hardware articles as shown above. The ease and convenience with which the books can be used is indicated in the following examples, taken from Book F:

For Augers,	turn to	AU	For Chisels,	turn to	CH _U	For Iron,	turn to	IRO
" Parers, Apple	"	PA _R	" Cutlery,	"	CUT	" Irons,	"	IR'S
" Saws,	"	SAW	" Cartridges,	"	CAR	" Shovels,	"	SH _O
" Pumps,	"	PUM _N	" Rules,	"	RUP	" Grindstones,	"	GRI
" Bits,	"	BIT	" Locks,	"	LO	" Stones,	"	STO

Special care has been taken to make the classification as indicated in the index correct and comprehensive, making provision for all Hardware articles and giving sufficient space for the keeping and recording of prices. It is thought that every strictly Hardware article has its first two or three letters given, thus permitting immediate reference to it by a single motion.

It is, however, obvious if any articles are not directly designated by the index characters, that the index, being alphabetical in its arrangement, indicates the place where quotations on such articles should be recorded. The supplement, however, may be found useful for quotations on any outside goods which the Hardwareman may desire to keep prices on, while at the same time it may be used if necessary for any overflow of matter from the preceding pages, or to contain list prices or other matter relating to goods.

Hardware Classification.—A pamphlet containing a classification of the leading Hardware articles is furnished with the price books.

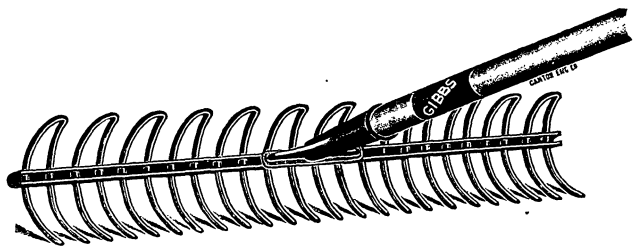
Standard Lists.—In connection with these price books a set of *The Iron Age* STANDARD HARDWARE LISTS can be used with great advantage. Price 25 cents.

These price books, which have been prepared by R. R. Williams, Hardware Editor of *The Iron Age*, are presented to the attention of Hardware men in the confidence that they will be found a most valuable aid in keeping track of prices.

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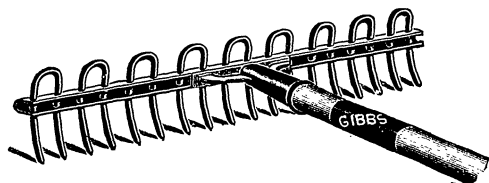
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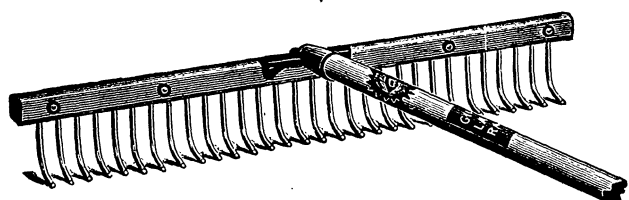
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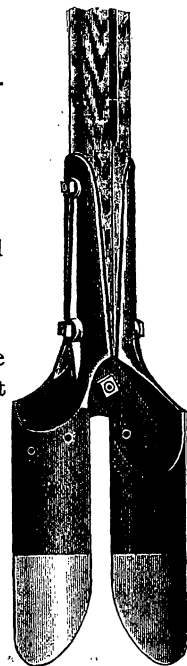


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Capacity of Fount about One Gallon. Burns 10 to 12 hours and **heats comfortably**, at a **nominal cost**, a room 15 feet square. Especially valuable where only temporary heat is required—viz., Bed Rooms, Bath Rooms, etc. The draft is regulated by Inside Drum and Side Air Chamber, so **no Chimney** is required. The expense of Chimneys, as in other makes, is thus avoided. The Combustion is perfect, there is therefore **no Odor**.

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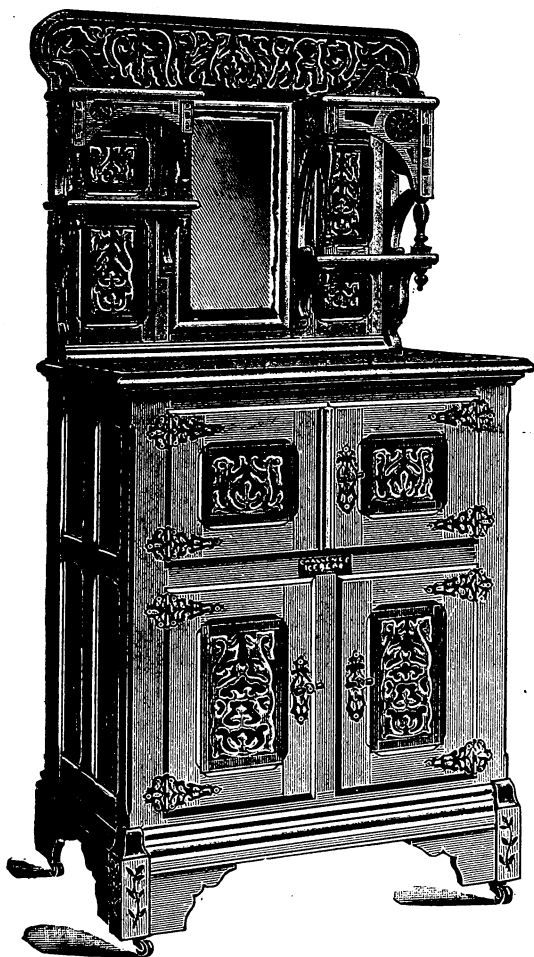
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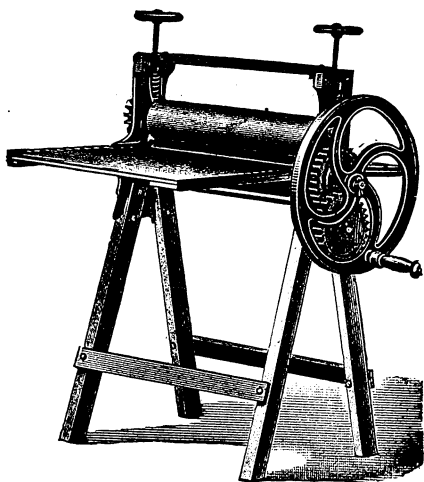
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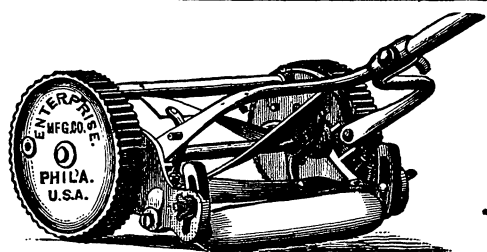
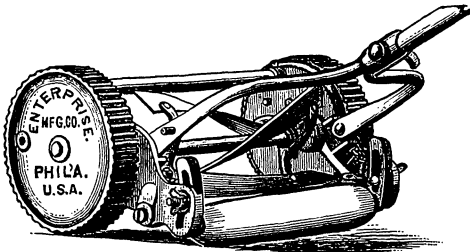
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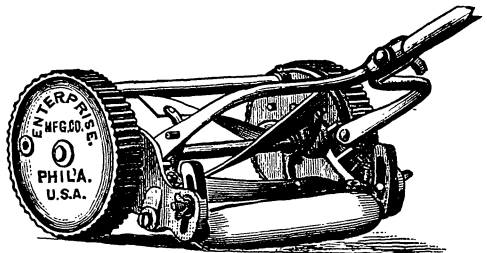
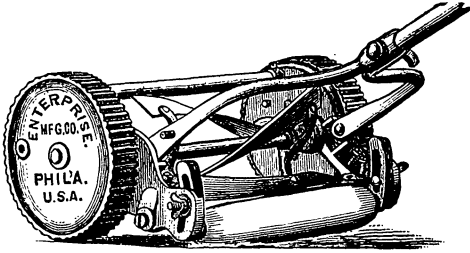
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EQUAL TO
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A BALL BEARING WRINGER.

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Only Successful one Ever Invented.

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All wearing parts revolve upon balls.

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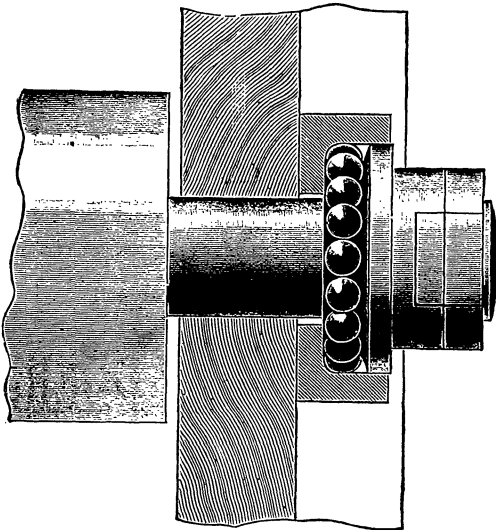
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Altogether finest machine on the market. Remember this is not a roller bearing, but is made with balls in the bearings like bicycles, which we also manufacture.

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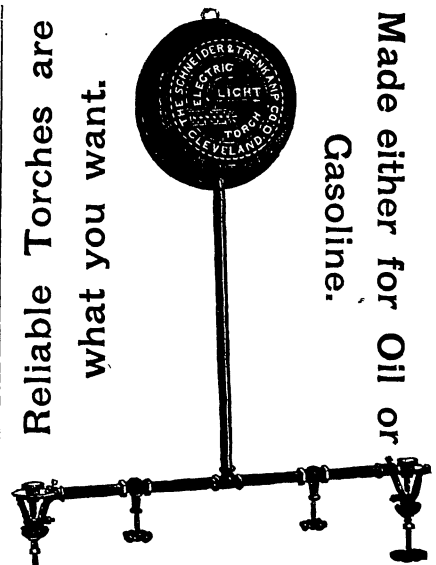
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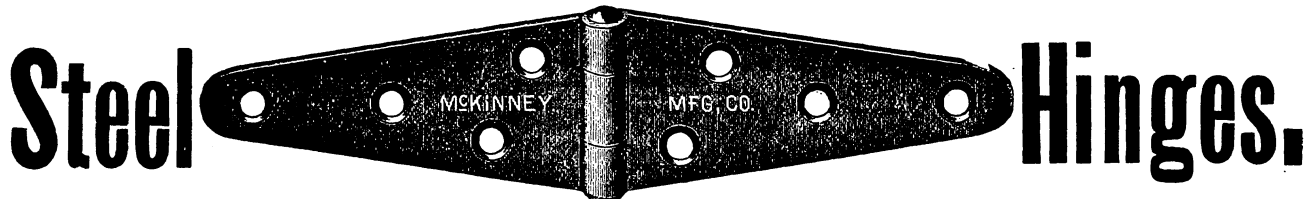


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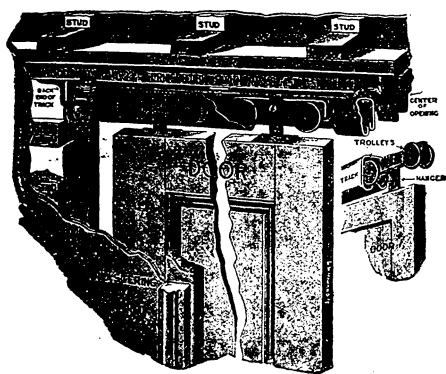
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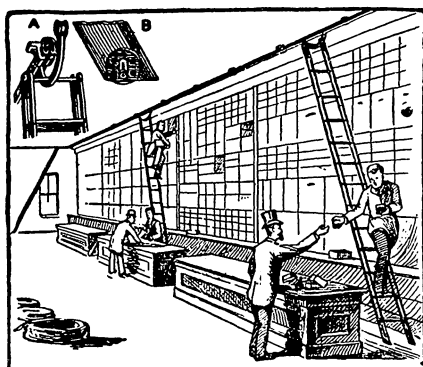
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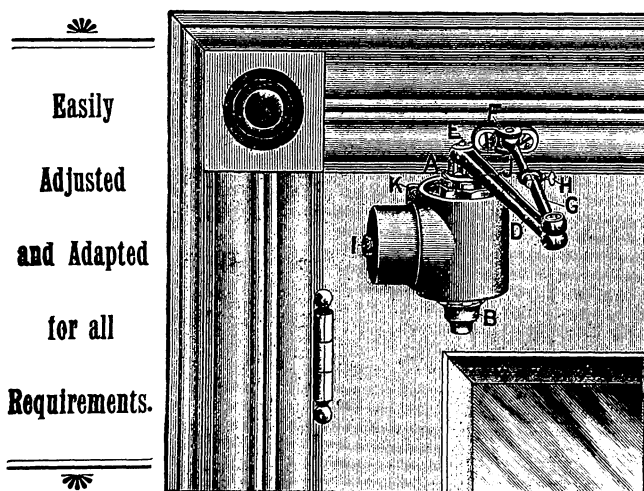
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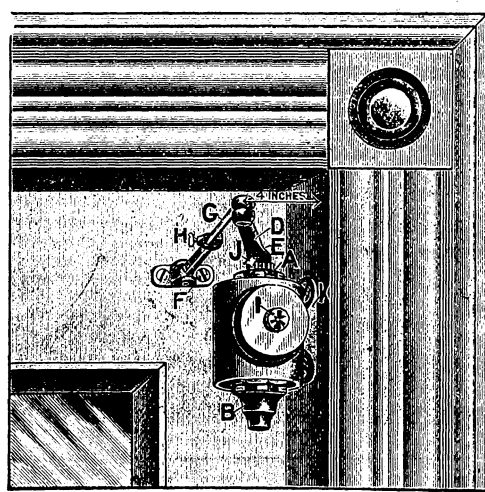
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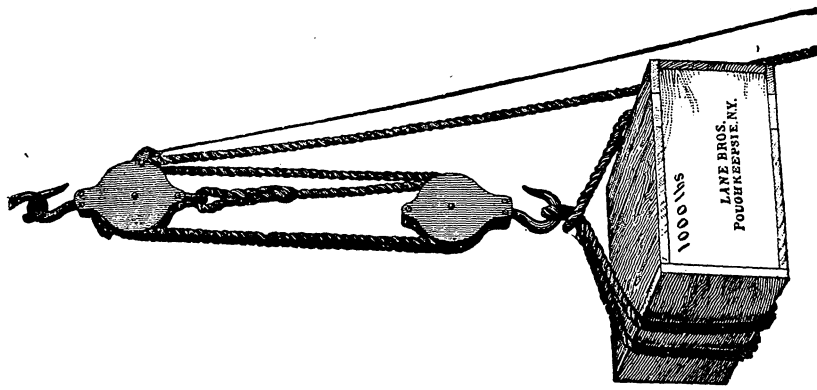


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You are selling that kind of a lock every day and
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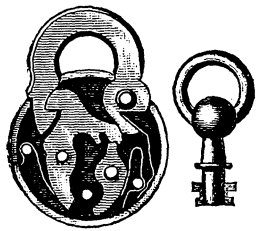
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PATENT PERFECTION PADLOCK.



Eight Tumblers, Key Turning Both Ways.

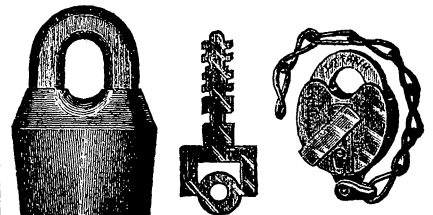
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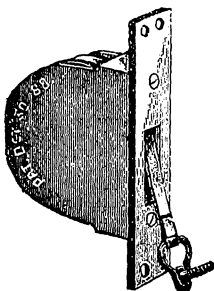
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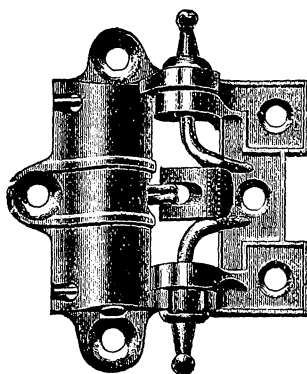
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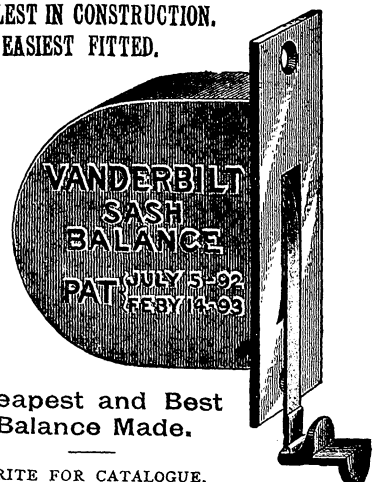
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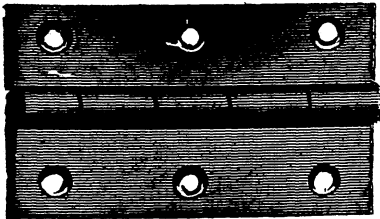
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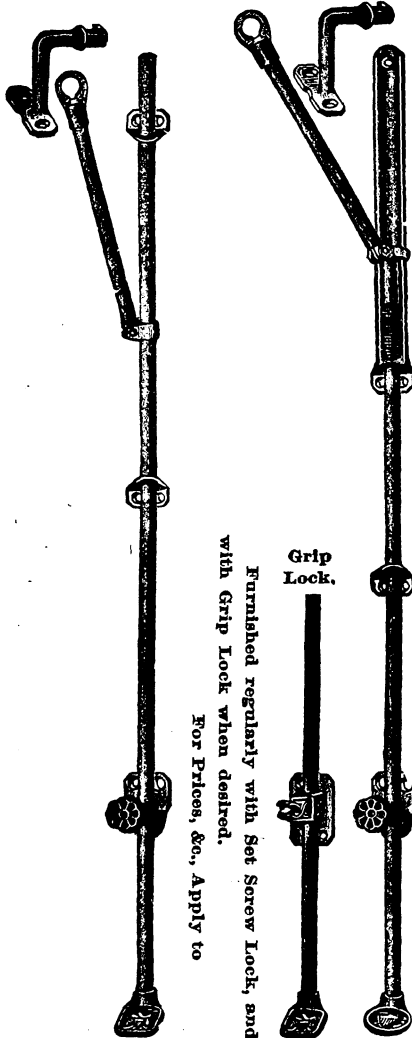
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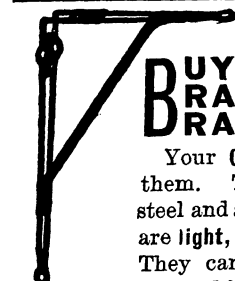
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Furnished regularly with Set Screw Lock, and with Grip Lock when desired.
For Prices, &c., Apply to

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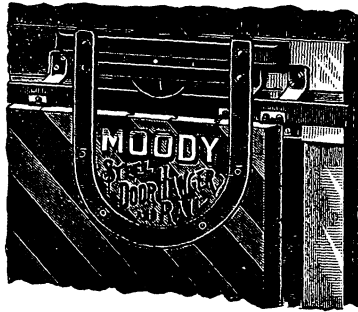
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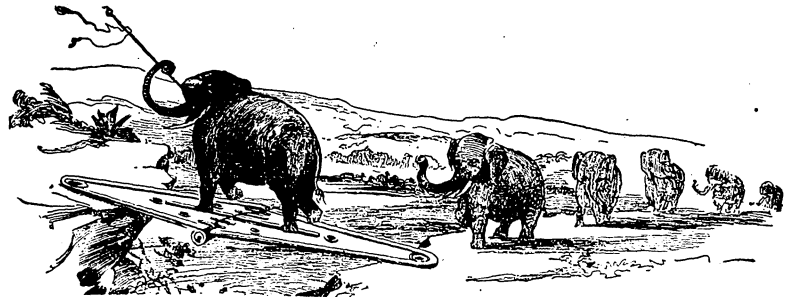


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The Only Bracing Bracket Made.

HANGERS.	PRICE-LIST.	Per Doz. prs.
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RAIL, per foot.....		6 1/4 cent.



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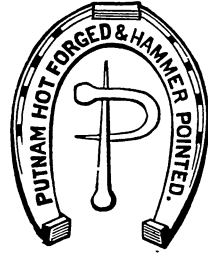
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The **PUTNAM** Hot-Forged and Hammer-Pointed Horse **NAILS,**



At the *World's Columbian Exposition* at Chicago. A medal and diploma worded:
"Supreme excellence in material, method in manufacture, and quality of finished product; elasticity and smoothness combined with holding power in clinch. It allows the use of very small nails."

There is nothing beyond "supreme excellence," nor is there anything comprised in a horse nail, except the "material from which it is made," "the method of manufacture," and "quality of finished product."

Putnam nails, by their "elasticity," give slightly to the expansion and contraction of the hoof while the horse is in motion; by their "smoothness," do not enlarge the nail holes in the hoof, while their "supreme excellence," in "holding power in the clinch," enables them to hold the shoe in the hardest service until worn out.

By the "use of small nails," large holes are avoided and money saved to the smith.

Thus it will be seen that the officials of the *World's Columbian Exposition* recognize what qualities go to make up a good horse nail and that only the "Putnam" contains them all.

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All Tags and Labels on Covert Goods bear the above Trade-Mark, and are sold by all Leading Jobbers in General and Saddlery Hardware at Manufacturers' Prices.

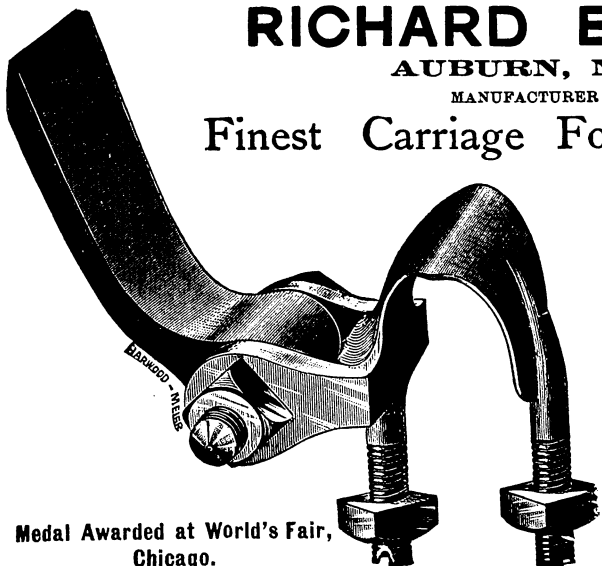


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MANUFACTURER OF

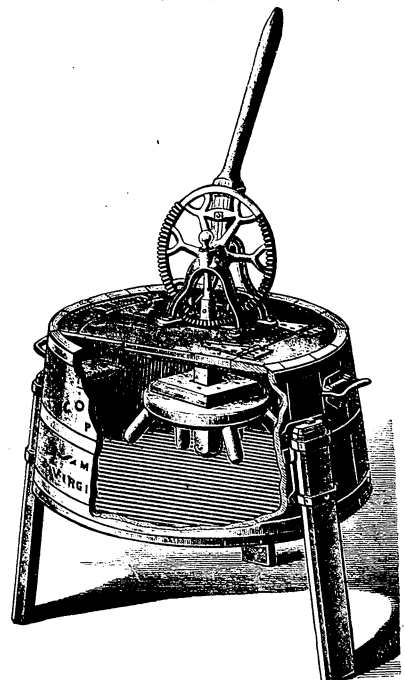
Finest Carriage Forgings, Couplings, Clips, King Bolts, Fifth Wheels, &c. Manufacture a full line Special Drop Forgings.



Medal Awarded at World's Fair, Chicago.

Send for New Catalogue for Season 1893-94

Columbia Washing Machine.



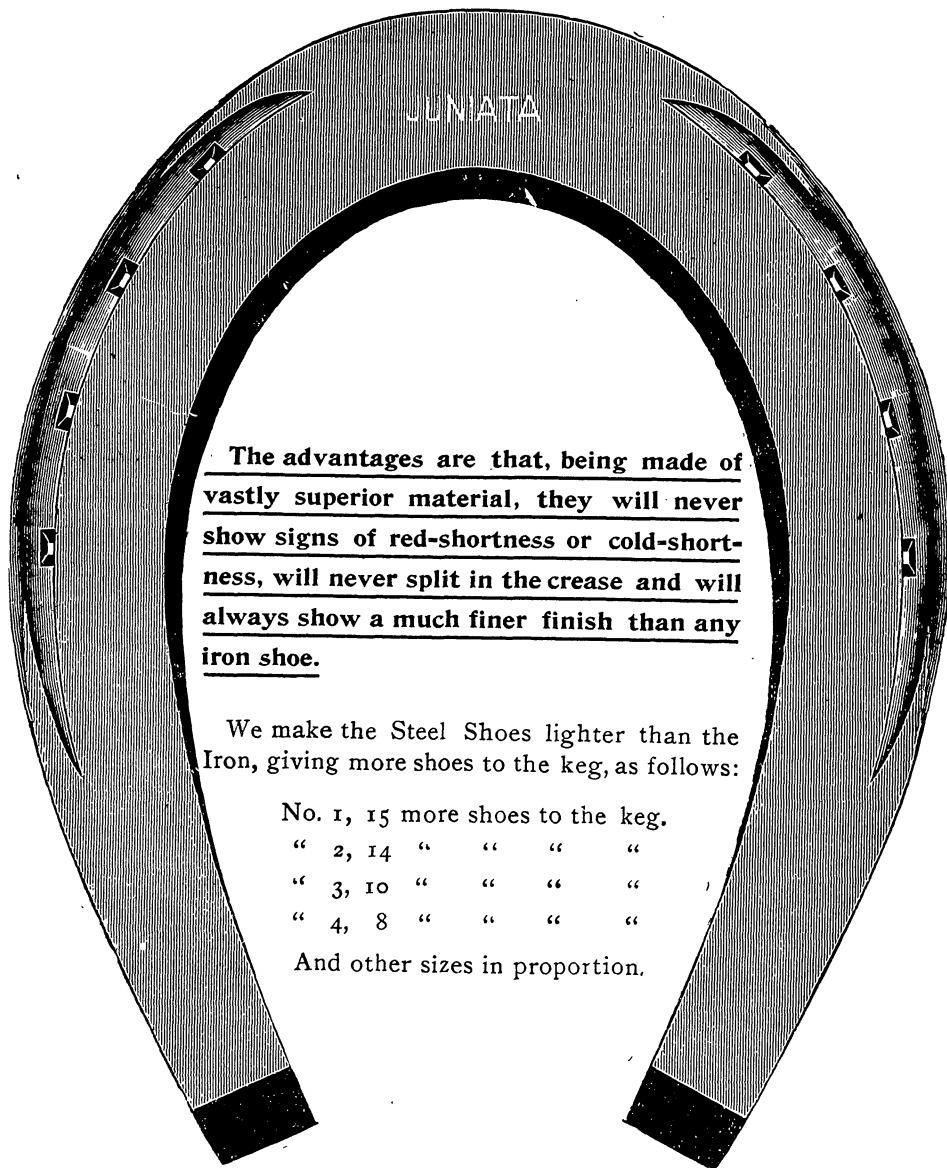
1. The Columbia is made of the finest VIRGINIA WHITE CEDAR and will last a lifetime.
2. It has EXTRA HEAVY CASTINGS and HOOPS, and is the ONLY machine on the market with ALL HOOPS, CASTINGS and TRIMMINGS GALVANIZED. It will NOT stain the clothes.
3. The BOTTOM and SIDES are corrugated on the inside of the washer ONLY.
4. The bottom of the Columbia is in the LARGE END, thus preventing clothes from WEDGING. Write for prices.

RICHMOND CEDAR WORKS,
RICHMOND, VA.

STEEL HORSE SHOES.

SHOENBERGER & CO., PITTSBURGH, PA.,

After numerous and costly experiments have succeeded in manufacturing a special quality of soft homogeneous steel, specially adapted to the manufacture of Horse and Mule Shoes, and are now making from this steel Extra Swaged, and Government Pattern Horse and Mule Shoes. They give the best of satisfaction everywhere and we furnish them to the trade at the same prices as the regular iron shoe sold by ourselves and our competitors. We are at present making our Roadster Pattern Horse Shoes out of Iron, but we will make them of Steel also within a short time.



The advantages are that, being made of vastly superior material, they will never show signs of red-shortness or cold-shortness, will never split in the crease and will always show a much finer finish than any iron shoe.

We make the Steel Shoes lighter than the Iron, giving more shoes to the keg, as follows:

No. 1, 15 more shoes to the keg.

" 2, 14 " " " "

" 3, 10 " " " "

" 4, 8 " " " "

And other sizes in proportion.

No. 2 EXTRA SWAGED FRONT.

We also beg to say that we have introduced improved machinery into our new factory and have doubled our capacity, and are now prepared to furnish the best shoe, either iron or steel, ever offered to the trade.

We would also call your attention to our Improved Steel Toe Calk, equal to any in the market. To secure the best wearing qualities use sand or borax in welding on a calk and cool off at a dark red, or still better, cool off without plunging in water. We make sizes numbers 1, 2, 3, 4, 5 and 6, packed in 25-pound boxes.

Write to us for information and prices, or apply to jobbers and dealers, who sell them everywhere.

SHOENBERGER & CO.,

JUNIATA IRON AND STEEL WORKS, - - - PITTSBURGH, PA.

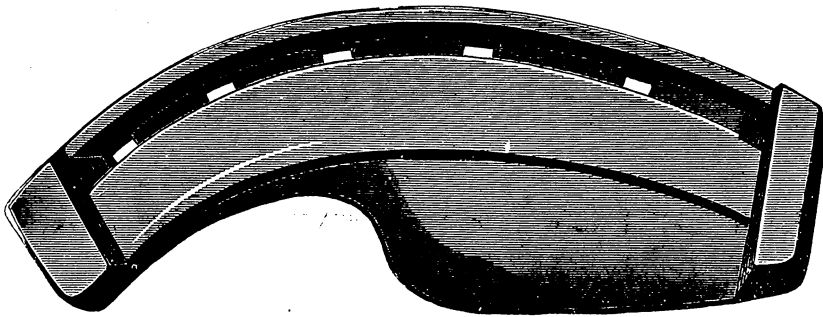
SCRANTON FORGING CO.,

SCRANTON, PA

CARRIAGE HARDWARE AND

SPECIAL DROP FORGINGS.

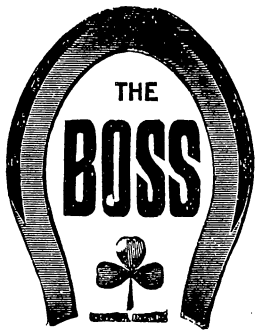
FORGED
OX
SHOES.



Made under Deebie's Patent, Aug. 9, 1887.

Our 1891 pattern is a modification of the style we have made for the past four years, giving additional strength to the web.

IT IS JUST RIGHT.



HORSE AND MULE SHOES.

Superior Quality, Shape and Finish.

BRYDEN HORSE SHOE CO.,
CATASAUQUA, PA.

RHODE ISLAND PERKINS HORSE SHOE CO.,
MANUFACTURERS OF

Horse and Mule Shoes of the Perkins Pattern.

SPECIALTIES:—X L Steel Shoes, Toe Weight Shoes and Goodenough Shoes.

Works at Valley Falls, R. I.

Office, 31 Exchange Place, Providence, R. I.

F. W. CARPENTER, Pres.,

C. H. PERKINS, Gen. Manager,
CHARLES R. STARK, Treas.

R. W. COMSTOCK, Sec'y,

J. C. McCARTY & CO., Agents - 97 Chambers Street, New York.

THE NEW DIAMOND STATE HORSE AND MULE SHOES.

JUST TRY THEM and YOU will say they excel all others.

MANUFACTURED BY

DIAMOND STATE IRON CO.
WILMINGTON, DELAWARE.

Other "high grade" specialties in Rivets, Spikes, Splice Bars, Track and Machine Bolts, Blind Nuts, Stay Bolt Iron, Horse Shoe Iron, Bar Iron, &c.

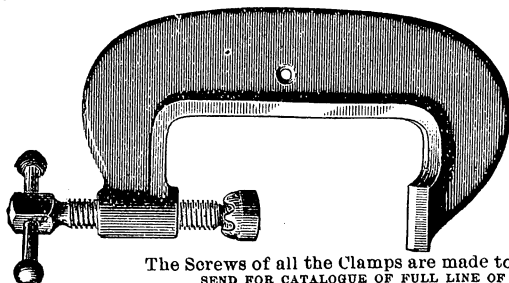
PHILADELPHIA OFFICE,
206 So. Fourth St.

{Correspondence invited}

NEW YORK OFFICE,
11 Pine St.

LE COUNT'S HEAVY STEEL CLAMP.

Extra heavy, with Button on end of screw, hung on a ball so as to accommodate itself to irregularities with out bending the screw. The foot of the Clamp is planed.



No. 1, opening to 2 inch.....	\$1 75
" 2, " " 3 ".....	2 00
" 3, " " 4 ".....	2 25
" 4, " " 5 ".....	2 50
" 5, " " 6 ".....	2 75
" 6, " " 8 ".....	3 25
" 7, " " 10 ".....	3 75
" 8, " " 12 ".....	4 25
" 9, " " 14 ".....	5 00
" 10, " " 16 ".....	6 00
" 11, " " 18 ".....	7 00

Full Set, 11 sizes, \$40.50.

Ship or Bridge Clamp with Large Screws.

No. 12 opens 24 inches.....	price, \$12 00
" 13 " 30 ".....	16 00

The Screws of all the Clamps are made to reach the lower number.
SEND FOR CATALOGUE OF FULL LINE OF MACHINISTS' TOOLS.

C. W. LE COUNT, MANUFACTURER, SO. NORWALK, CONN., U. S. A.
These goods are for sale by CHAS. CHURCHILL & CO., Ltd., 21 Cross St., London, England.

BURDEN'S

HORSE SHOES.

"Burden Best"

Iron

Boiler Rivets.

The Burden Iron Co.

TROY, N. Y.

PHOENIX HORSE SHOES.

PHOENIX HORSE SHOE CO.,

Poughkeepsie, N. Y.

NEW YORK OFFICE, No. 66 Reade St.

Standard Horse Shoe Co.,
Manufacturers of
HORSE AND MULE SHOES.

LEEDS, ROBINSON & CO., General Agents,

4 Liberty Square, Boston, Mass.



— HIGHEST AWARD —

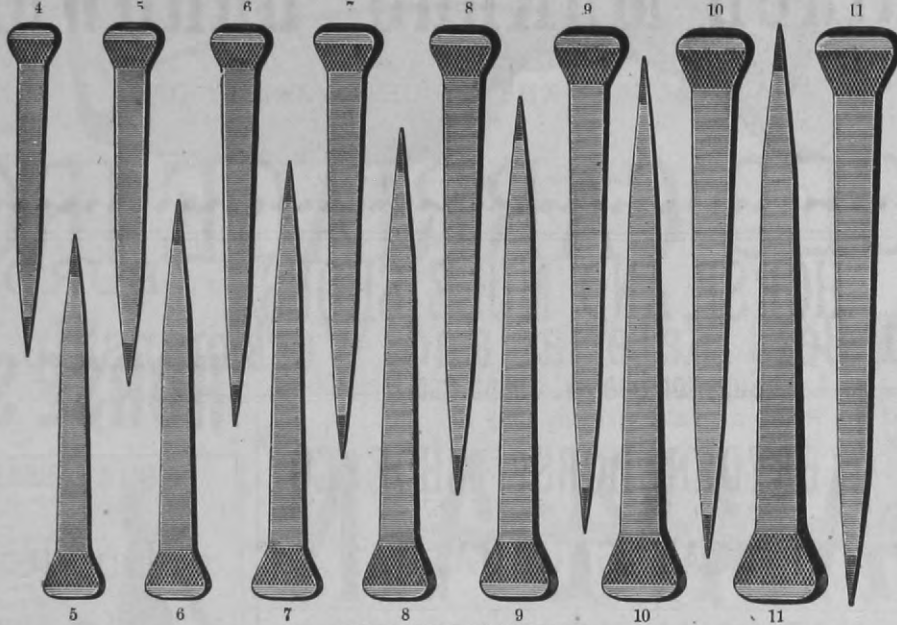
AT

WORLD'S COLUMBIAN EXHIBITION.

CAPEWELL HORSE NAILS.

"Tensile strength one-half greater than that of any other nail made."

CITY HEADS.



REGULAR HEADS.

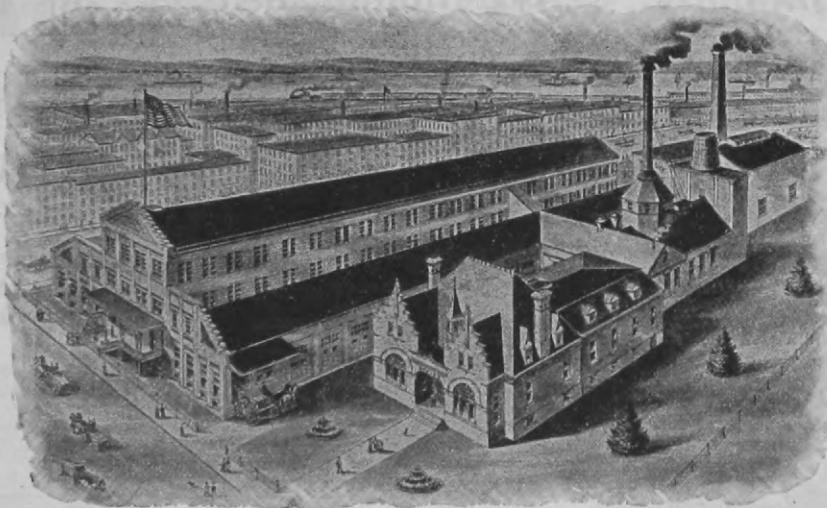
The Capewell Patent Corrugated Horse Nail.

Needs no
Clinching.



Made in
All Sizes.

"The Coming Nail to be Used."—JOHN KIERNAN,
Chief Farrier and Instructor in Horseshoeing, U. S. Army.



The Capewell Horse Nail Co.,
HARTFORD, CONN.



H. D. SMITH & CO.,

Plantsville, Conn.,

MANUFACTURERS OF THE BEST QUALITY

CARRIAGE MAKERS' HARDWARE,

MANUFACTURE THE LARGEST VARIETY OF

FORGED CARRIAGE IRONS

Of Best Material and Workmanship.

Send for Price and Illustrated List of

CHAMPLAIN

Manufactured by the **NATIONAL HORSE NAIL CO.,**
VERGENNES, VERMONT.

All Sizes. All Patterns. All Warranted. Sold Everywhere.

J. C. McCARTY & CO., Agents. New York.



Elegant Iron.
Beautiful Shape.

HORSE SHOES,
Light, Medium and Heavy.
MULE SHOES,
Light, Medium and Heavy.

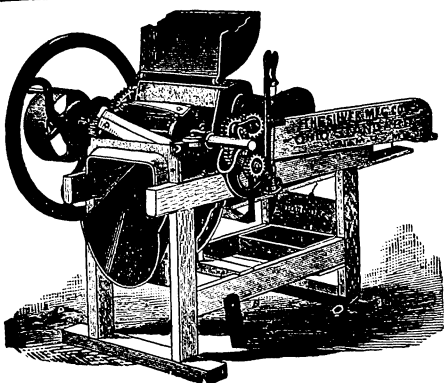
Illustrated booklet and prices to all parts of the world on application.

OLD DOMINION IRON AND NAIL WORKS CO.,

ARTHUR B. CLARKE, President.

Richmond, Va., U. S. A.


Chicago Office, 45 La Salle St.



THE "OHIO" Feed and
Ensilage Cutters and Car-
riers are the best.

By reason of wide open throat
and improved feeding device
(being full width of cutting sur-
face, all sizes), our machines
have greater capacity than others.

THE SILVER MFG. CO. Salem, O.



P. F. BURKE, C. F. DEWICK & CO.
Successor to
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PATENT STEEL
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TOE-CALKS.
—ALSO—
BURKE'S IMPROVED
HORSESHOERS'
FOOT VICE.
Send for Circulars.
360 Dorchester Av. Die for Welding
BOSTON, MASS. Sharp Calks.

Crescent
Horse and Mule Shoes,
BAR IRON.

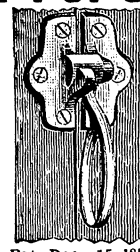
CRESCENT HORSE SHOE
IRON CO.

Max Meadows, Va.



FROST'S ANTI-RATTLER
Pat. Jan. 20, 1880.
Cut One-half Size.
Sample pair sent to any hard-
ware or saddlery firm by ad-
dressing
The Frost Thill Spring Co.,
Boston, Mass.

P. J. Conroy & Co.,
Paschall, PHILADELPHIA.



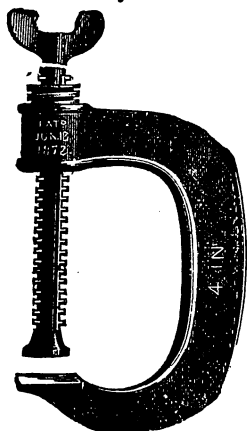
"CONROY"
Refrigerator Door
Fasteners

Have rapidly supplanted all
others.
Refrigerator Trimmings.

Pat. Dec. 15, '85

BUFFALO SCALE CO., Buffalo, N. Y. SCALES OF ALL KINDS.

PATENTED ARTICLES OF MALLEABLE IRON Hammer's Adjustable Clamps.



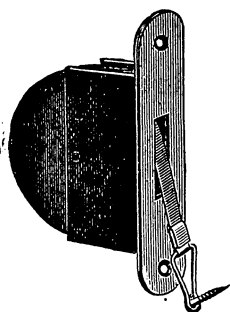
Hammer's Malleable Iron Oilers, 3 Sizes.
Malleable Iron Hand Lamps.
Malleable Iron Hanging Lamps.
NEW pattern Heavy Screw Clamps.
Strongest in the market.
For sale by all the principal Hardware dealers.
Send for Price List.

MALLEABLE IRON CASTINGS
of superior quality and Hardware Specialties
in Malleable Iron made to order.

HAMMER & CO.,
Branford, Conn.

Mechanically Perfect. Endorsed by the Architect

as the most durable device ever invented
for counter balancing the weight of sash.

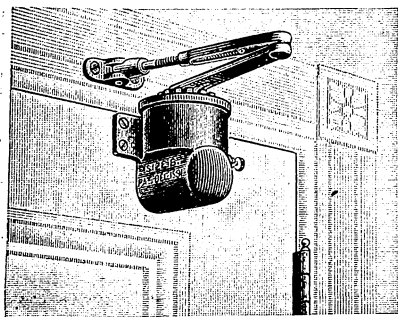


**NO POCKETS OR
BOXES REQUIRED.**

Can be used in
old as well as new
houses. Warranted
15 years.

Write for Illustrated
Price-List.

PULLMAN SASH BALANCE CO., Rochester, N. Y.
New York Office, 142 Chambers St.
Chicago Office, 235 Lake St.

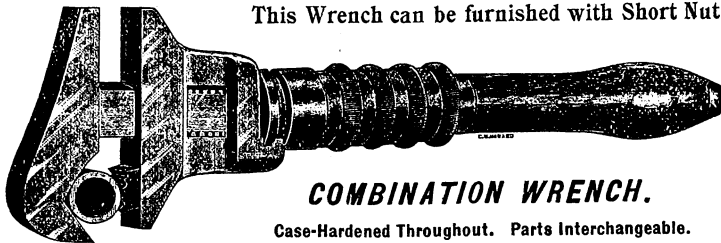


Bardsley's Liquid Door Check and Spring

Perfect in action, durable, neat in appearance, low
in price and fully warranted. Responsible Agents
wanted in the principal cities.

J. BARDSLEY, 149 & 151 Baxter St., New York.

This Wrench can be furnished with Short Nut.

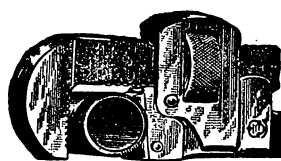


COMBINATION WRENCH.

Case-Hardened Throughout. Parts Interchangeable.

This wrench not only combines the superior qualities of a Gas Pipe Wrench but also all the
requisite combinations of a regular Nut Wrench, thus making a combination which has no equal.
For Circulars and Price-List, address

BEMIS & CALL HARDWARE & TOOL CO., Springfield, Mass., U. S. A.



TRIMO PIPE WRENCH,

Forged Steel.

All parts interchangeable.

Grips firmly without loss of motion. Releases readily. Never locks. Causes no
trouble in close quarters. Does not crush the pipe.

TRIMO CHAIN PIPE WRENCH.



Superior in strength and ease of operation.
COMPLETE circular grip. Never slips nor crushes.

Can be used with one
hand and in closer quarters
than any other Basin
Wrench. Parts Interchange-
able.

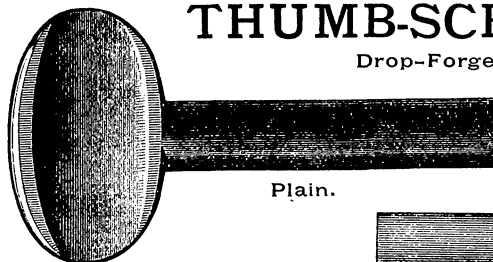
TRIMO BASIN WRENCH.

TRIMONT MFG. CO., ROXBURY
MASS.

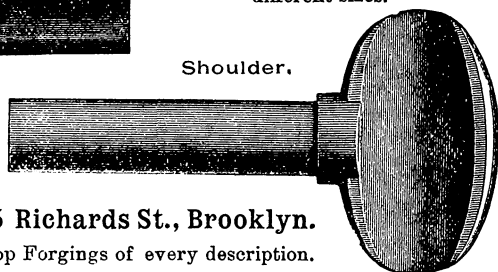
THUMB-SCREW BLANKS

Drop-Forged from Bar Steel.

Carried in stock in seventy-five
different sizes.



Plain.

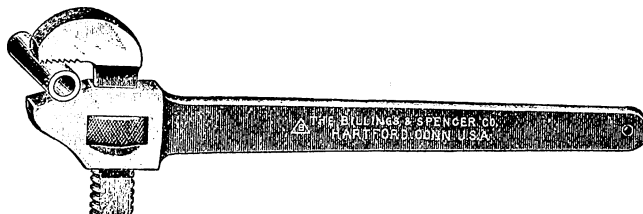


Shoulder.

Send for Price-List to

J. H. Williams & Co., 9 to 15 Richards St., Brooklyn.
Iron, Steel, Copper and Bronze Drop Forgings of every description.

THE BILLINGS PIPE WRENCH



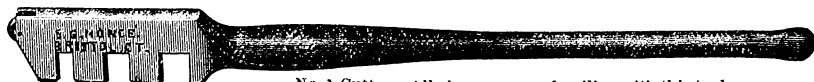
Jaw Drop Forged
from best Tool Steel
Few Parts

Best Workmanship
Angle of Jaws the
same irrespective of
the size of pipe taken

Length 14 inches Takes Pipe from $\frac{1}{4}$ to $1\frac{1}{2}$ inches

The Billings & Spencer Co., Hartford, Conn.

MONCE'S NOVELTY GLASS CUTTERS. — INTERCHANGEABLE LOCK STENCILS.



No. 1 Cutter. All glass men are familiar with this tool.

S. G. MONCE — — — **BRISTOL, CONN.**

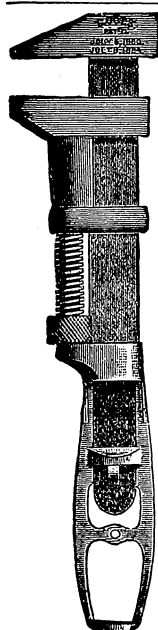
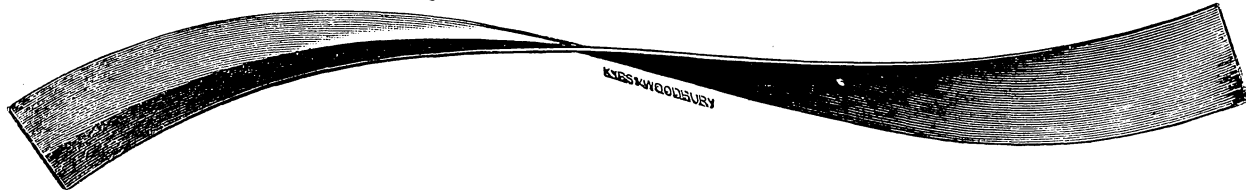
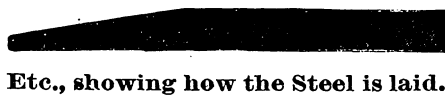
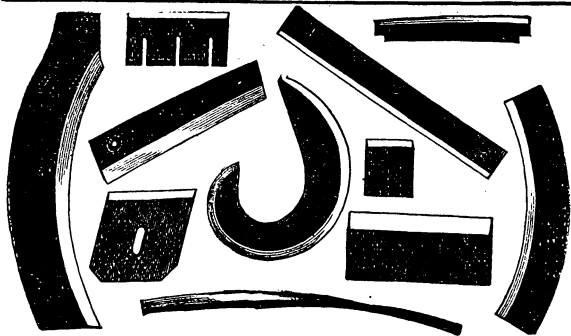
LORING COES & CO.

WORCESTER, MASS.

Manufacturers of **MACHINE KNIVES.**

Shear Blades and Strips, Moulding Cutter Plate, Die-Stock for Leather, Cloth and Paper Cutting Dies. Lawn-Mower and Hay Cutter Knives of every description.

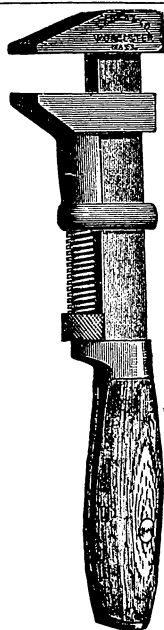
End view of Plated Stock for Dies, Lawn Mower Knives, Blades, Etc., showing how the Steel is laid.

**L. COES'**

Genuine Improved
**KNIFE HANDLE
PATENT**

**Screw
Wrenches**

MANUFACTURED BY
COES WRENCH CO.,
WORCESTER, MASS.



Established in
1839.
Registered
March 31, 1874.

Patented July
6, 1880.
Patented July
8, 1884.

Sectional View Illustrates our New Knife Handle, showing Malleable Iron Frame and Shank of Bar keyed into position.

✓ Straight Bar, Extra Long Nut for Screw in Jaw. ✓

The **BEST MADE** and **STRONGEST WRENCH** in the MARKET.

J. C. McCARTY & CO.,
JOHN H. GRAHAM & CO. } New York Agents.

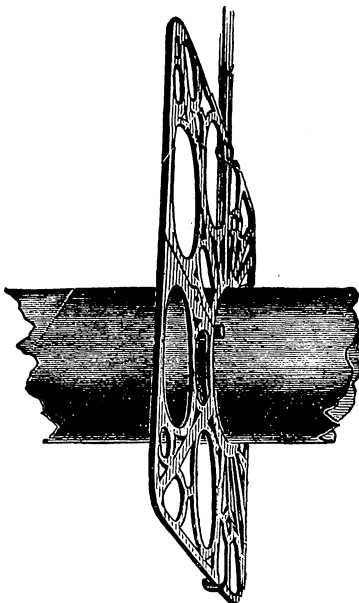
Law without Lawyers. The Henry C. Hart Mfg. Co.

DETROIT, MICH.,

MANUFACTURERS OF

HARDWARE SPECIALTIES.

STANDARD STOVE PIPE SHELF.



SEND FOR CATALOGUE.

IMPROVED MINE LAMP
FOR ANTHRACITE AND BITUMINOUS MINING.

6 DIFFERENT STYLES OF SPOUTS.

SEAMLESS BRASS COLLAR
BRASS HINGE
Lid Solid
No SOLDERING

SAMPLE 15¢.

B. E. LEONARD, Scranton, Pa.

BUY CURLEY'S ONLY

PAT. D. MAR 22 84

THE ONLY ONE THAT WILL DRAW THE CORK WITHOUT PULLING.

THE ONLY ONE THAT WILL DRAW THE CORK WITHOUT PULLING.

EMPIRE PORTABLE FORGE COMPANY.

LANSDOWN, N. Y. U.S.A.

FINELY NICKEL PLATED

N. Y. Office, 103 Chambers St. W. H. QUINN, Manager.

**A Compendium of Business
and Domestic Law for
Popular Use.**

By **H. B. COREY,**
Member of the New York Bar,

PRICE, \$1.00. Post-paid.

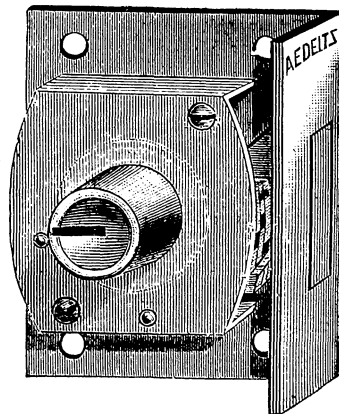
A simple, clear and accurate presentation of the general laws, and of the laws of the several States relating to the rights of property, contracts, debts, partnerships, bankruptcy, insurance, corporations, marriage, divorce, &c., &c., with which are included correct copies of all legal instruments and forms, such as notes, deeds, mortgages, leases, wills, &c., and a dictionary of legal words and phrases.

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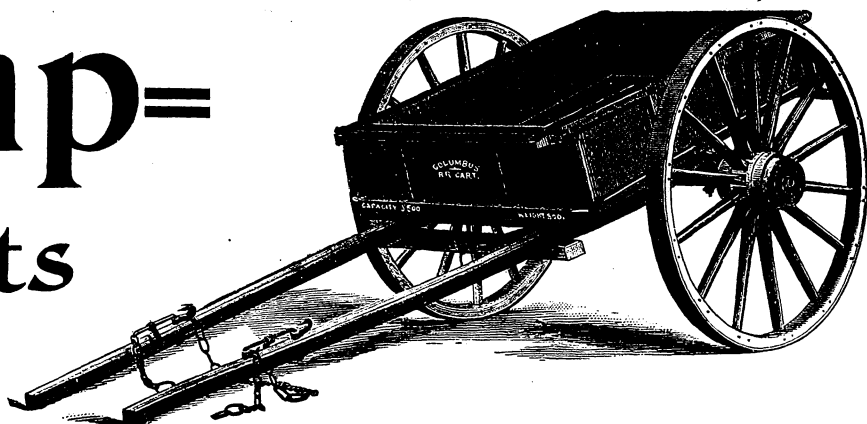
A. E. DEITZ

No. 51 Lock.

J. C. McCARTY & CO., Agents,
97 Chambers and 81 Reade Sts., New York.

Factory, **BROOKLYN, E. D., N. Y.**

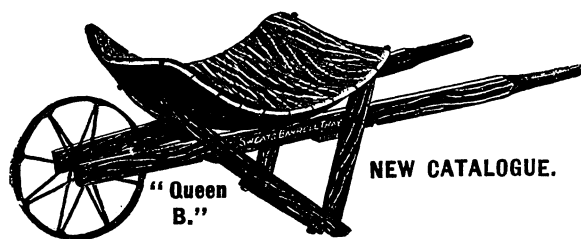
Dump= Carts



For Railroads and Farm Use.

Especially adapted for Contractors, Plantations, or Farmers. Light, strong and just the thing. Hardware dealers *can sell these* just as well as our drag and wheel scrapers or wheelbarrows, of which we make the largest variety in the world.

The Kilbourne & Jacobs Mfg. Co., COLUMBUS, O., U. S. A.

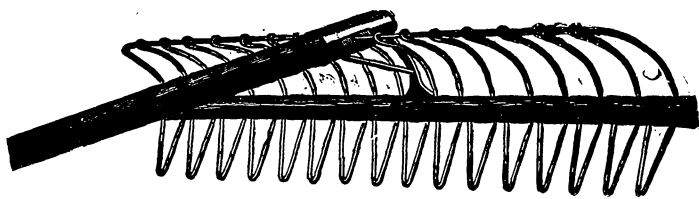


"Queen Lil's" fate still in doubt,
But "Queen B" you should not
be without.

SWEATT MFG. CO., - MINNEAPOLIS, MINN.

LAWN RAKES. The "GEM" AND "DAVIS."

Both good and each the best. If you have not stocked up, better do so at once. Our prices are low.



SCHAEFFER & CO., Dayton, O.

IT PAYS. Nothing about a Hardware Store looks so well as clean shelves and the goods neatly boxed with a fresh sample on the front. Customers are attracted by such a display of care, and notice and buy things that would ordinarily go without notice. The Boxes are inexpensive, save the goods, make a big show for a small investment and help the salesmen. Send to **JESSE JONES & CO., 615 and 617 Commerce St., Phila., Pa.,** for Catalogue of prices styles, and references.



STEEL BARROWS.

LANSING WHEELBARROW CO.
LANSING, MICH.

ALL STEEL WHEELBARROWS & SCRAPERS

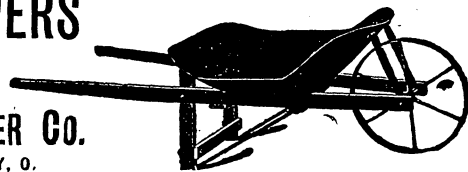
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AMERICAN STEEL SCRAPER CO.

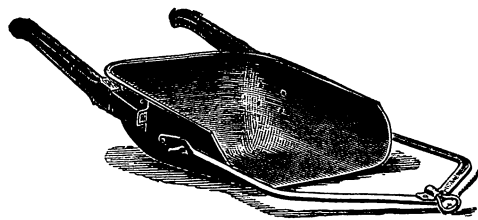
1104 Court Street, SIDNEY, O.



Write
for
Catalogue



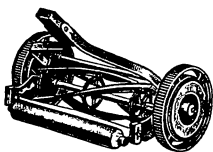
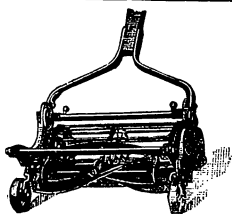
W-E-L-A-R-W-



To the dealer sending us the complete and correct spelling of the word outlined above we will send by return mail something of interest and value.



Sidney Steel Scraper Co., 924 Poplar Street,
SIDNEY, O.

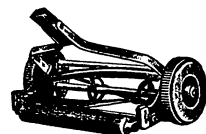
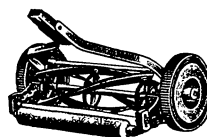


A new catalogue of the best line of

LAWN MOWERS

in the market is yours for the asking.

BLAIR MFG. CO.,
SPRINGFIELD, MASS.

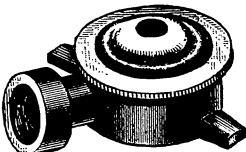


Japanese No. 12,
Adjust.

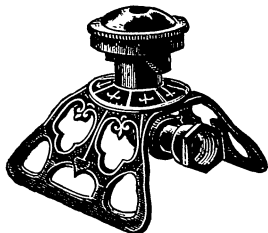
LAWN SPRINKLERS.

We manufacture the BEST and CHEAPEST Lawn Sprinklers in the World.

Cactus No. 9.



The only Sprinklers which have no revolving parts to leak or wear out.
The only Sprinklers free from small holes, and which cannot become clogged with gritty substances.
The only Sprinklers which are adjustable and will give a spray as fine as the mist of Niagara, or as heavy as the area of the supply pipe.
The best Sprinklers for high pressures, and the only sprinklers which will give satisfaction with low pressures.
We also manufacture the old style revolving sprinklers, but for our own use would not have them.

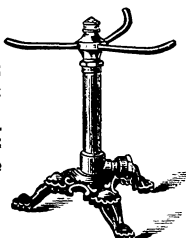


Cactus No. 5.

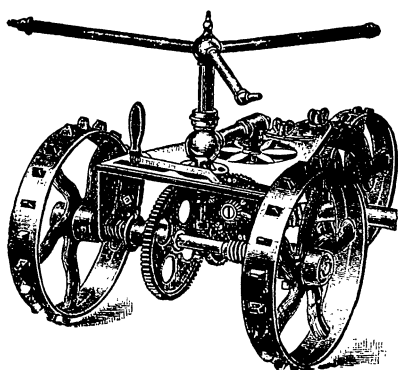
Ette & Henger Mfg. Co.

ST. LOUIS, MO.

National N. G.



SEND FOR DESCRIPTIVE CIRCULARS.



LITTLE GIANT

Traveling Lawn Sprinkler.

PATENTED.

Can be set to travel anywhere from 15 to 500 feet per hour, either on a straight line or in a circle, and can be gauged to throw water over a swath 5 to 50 feet in width.

Highest Award at World's Columbian Exhibition.

SEND FOR CIRCULAR.

PORTLAND LAWN SPRINKLER CO.,
PORTLAND, ME.

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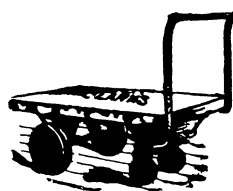
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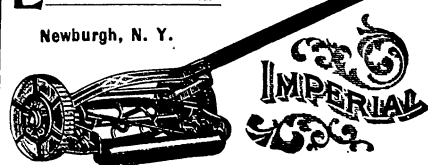
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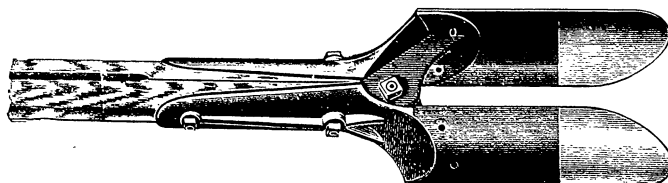
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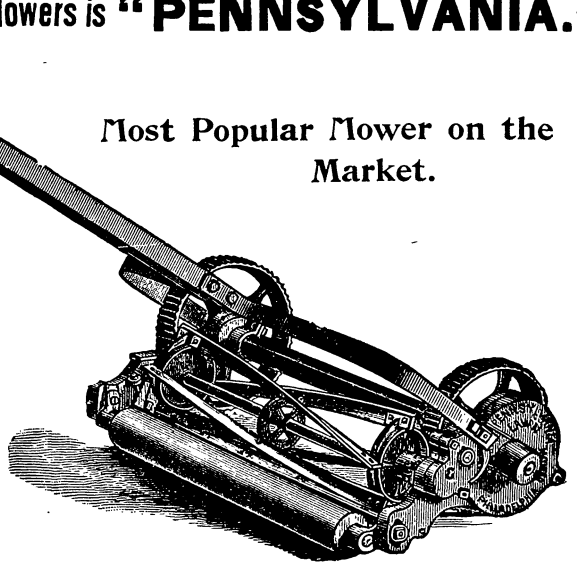
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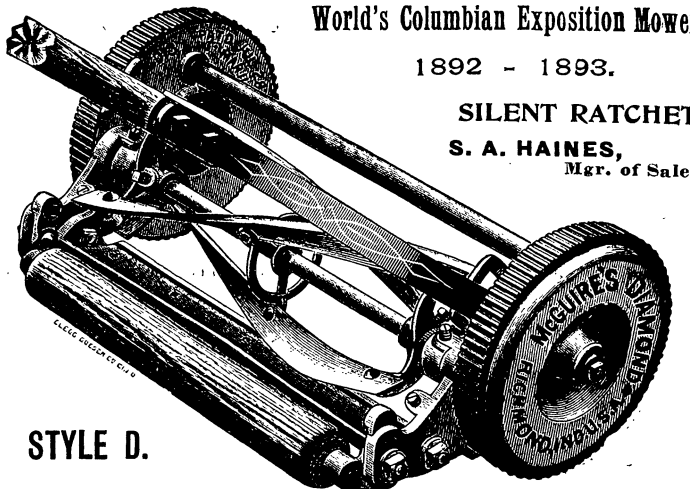
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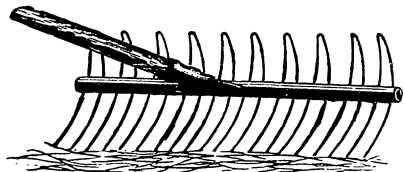
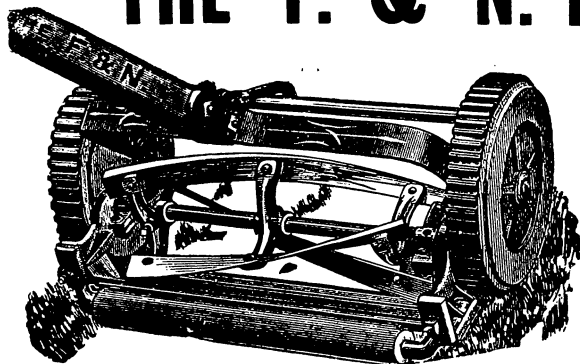
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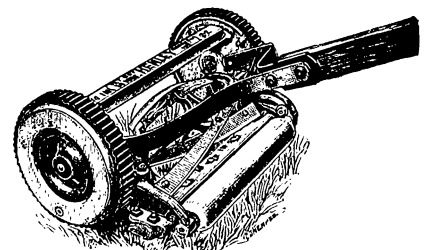
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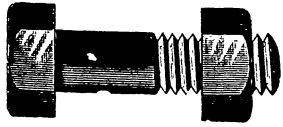
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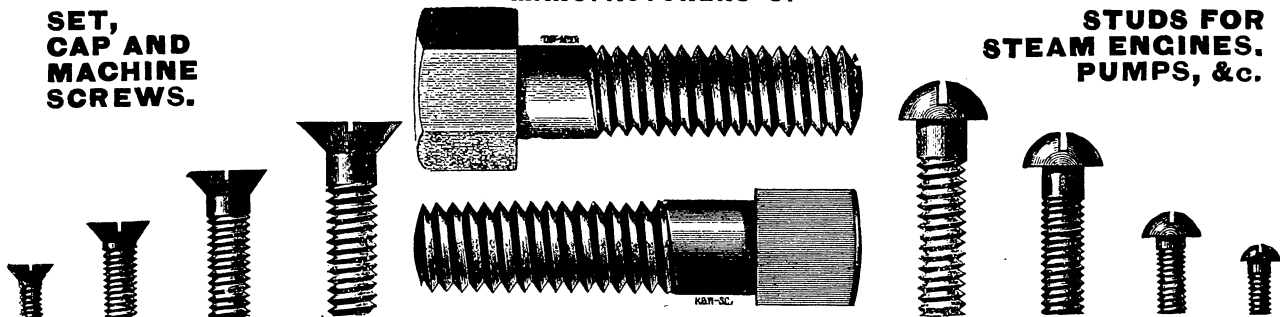
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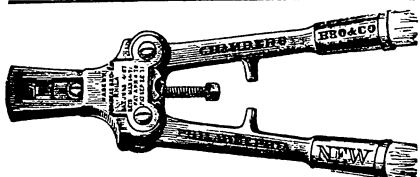
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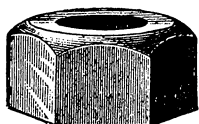
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Mich.

Curling Irons.
Nicol & Co., Chicago, Ill.

Cutlery Cases.
Torrey, J. R. & Co., Worcester, Mass.

Cutlery, Importers of.
Field, Alfred & Co., 93 Chambers St.,
New York.
Gurney, Fred B., 116 Chambers St.,
N. Y.
Sickles, Sweet & Lyon, 35 Barclay, N. Y.

Cutlery, Manufacturers of.
Bingham, W. Co., Cleveland, Ohio.
Dama, Stoddard & Kendall, Boston
Mass.
Electric Cutlery Co., 113 Chambers, N. Y.
Goodell Co., Antrim, N. H.
Northampton Cutlery Co., Northamp-
ton, Mass.
Wilson, John, Sheffield, England.

Cyclometers.
Bridgeport Gun Implement Co., 313
315 Broadway, N. Y.

Dies.
Wilson, J. Fred, Worcester, Mass.

Die Forgings and Castings.
Bliss, E. W. Co., Brooklyn, N. Y.

Door Checks and Springs.
Bardsley, J., 149 & 151 Baxter St., N. Y.
Corbin, P. & F., New Britain, Conn.

Drain Cleaners.
Buckeye Mfg. Co., Union City, Ind.

Drawing Instruments.
Keuffel & Esser Co., 127 Fulton St., N. Y.

Drilling Machines.
Bickford Drill & Tool Co., Cin., Ohio.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lan-
caster, Pa.
Colburn, A. M., New Haven, Conn.
Dallet, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford
Conn.
Halsey, Jas. T., Philadelphia, Pa.
Hamilton Mch. Tool Co., Hamilton, O.
Norton & Jones Machine Tool Works,
Plainville, Conn.
Penna. Diamond Drill & Mfg. Co.,
Birdsboro, Pa.
Quint, A. D., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa.
Sibley & Ware, So. Bend, Ind.
Sigourney Tool Co., Hartford, Conn.
Silver Mfg. Co., Salem, O.

Drop Forgings.
Helen Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn.
Boone, W. C. Mfg. Co., Boonton, N. J.
Eccles, Richard, Auburn, N. Y.
Merrill Bros., Brooklyn, N. Y.
Miner & Peck Mfg. Co., New Haven, Ct.
Phila. Drop Forge Co., Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.
Spies, J. C. & Co., Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport,
Conn.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Bliss, E. W. Co., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Miner & Peck Mfg. Co., New Haven,
Conn.
Stiles & Parker Press Co., Brooklyn,
N. Y.

See Alphabetical Index, Pages 95 & 96.

- Vulcan Iron Works, Chicago, Ill.**
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
- Damp Walters.**
Storm Mfg. Co., Newark, N. J.
- Dust Beaters.**
Peabody & Parks, Troy, N. Y.
- Dynamite.**
New York Powder Co., 62 Liberty St. N. Y.
- Dynos.**
C. & C. Electric Co., 402 and 404 Greenwich St., N. Y.
- Edge Tools. Makers of.**
Suck Bros., Millbury, Mass.
Plumb, Fayette R., Philadelphia, Pa.
White, L. & I. J. Co., Buffalo, N. Y.
- Edging Shears.**
Dille & McGuire Mfg. Co., Richmond, Ind.
- Egg Beaters.**
North Bros. Mfg. Co., Philadelphia.
- Electric Bells and Supplies.**
Ostrander, W. R. & Co., 204 Fulton St., New York
Wollensak, J. F., Chicago, Ill.
- Electric Dynamo Machines.**
Colburn Electric Mfg. Co., Fitchburg, Mass.
- Elevators. Makers of.**
Link-Belt Engineering Co., Phila., Pa.
Morse, Williams & Co., Phila., Pa.
- Emery and Emery Wheels.**
Bell, Geo. E., 38 John St., N. Y.
Grant Corundum Wheel Mfg. Co., Worcester, Mass.
N. Y. Belting & Packing Co., Ltd., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester, Mass.
Sterling Emery Wheel Co., 174 Fulton St., New York
Sturtevant Mill Co., Boston, Mass.
- Emery Wheel Dressers.**
Bay State Stamping Co., Worcester, Mass.
- Enamels.**
Nubian Iron Enamel Co., Cragin, Ill.
- Engineers and Contractors.**
Aiken Henry, Pittsburgh, Pa.
Artificial Gas Engineering Co., Pittsburgh, Pa.
Herriock, J. A., 284 Pearl St., N. Y.
Kennedy, Julian, Pittsburgh, Pa.
Laughlin, Alex. & Co., Pittsburgh, Pa.
Lean, D. B. Co., Pittsburgh, Pa.
McClure, Amster & Co., Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smythe, S. R. Co., Incorporated Pittsburgh, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.
- Engines, Gas.**
Otto Gas Engine Works, Phila., Pa.
Rollason Gas Engine, Havemayer Bldg., N. Y.
- Engines, Steam. Makers of.**
Bass Foundry & Machine Works, Ft. Wayne, Ind.
Buckeye Engine Co., Salem, O.
Erie Engine Works, Erie, Pa.
Norwalk Iron Works Co., So. Norwalk, Conn.
Penna. Diamond Drill & Mfg. Co., Birdsboro, Pa.
Phila. Engineering Works, Phila., Pa.
Phoenix Iron Wks. Co., Meadville, Pa.
Southwark Foundry and Machine Co., Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.
- Exhaust Tumblers.**
Sweester, W. A., Brockton, Mass.
- Expansion Belts.**
Boone, W. C. Mfg. Co., Boonton, N. J.
Church, Isaac, Toledo, O.
Steward & Romaine Mfg. Co., Phila., Pa.
- Faucets, Self-Measuring.**
Lane Bros., Poughkeepsie, N. Y.
- Faucets, Wooden. Makers of.**
John Sommer's Son, Newark, N. J.
- Feed-Water Heaters.**
Davis, I. B. & Son, Hartford, Conn.
Goubert Mfg. Co., 32 Cortlandt St., N. Y.
Harrison Safety Boiler Wks. Phila., Pa.
National Pipe Bending Co., New Haven, Conn.
Taunton Locomotive Mfg. Co., Taunton, Mass.
Webster, Warren & Co., Camden, N. J.
Whitlock Coil Pipe Co., Elmwood, Conn.
- Fencing, Iron and Wire.**
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Clinton Wire Cloth Co., Clinton, Mass.
Gilbert & Bennett Mfg. Co., 42 Cliff St., Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foss & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.
- Files. Importers of.**
Moss, F. W., 80 John, N. Y.
- Files and Rasps, Manufacturers of.**
Arcade File Works, Anderson, Ind.
Zanker & White, Troy, N. Y.
- Barnett, G. & H., 41 & 43 Richmond Phila.**
McCauley File Co., Philadelphia.
Nicholson File Co., Providence R. I.
- Fire Brick. Makers of.**
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, Foot E. Houston, St. Mo.
McLeod & Henry Co., Troy, N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Ostrander Fire Brick Co., Troy, N. Y.
Solomon, Jao, M. Wilmington, Del.
Valentine, M. D. & Bro., Woodbridge.
- Fire Sets.**
Troy Nickel Works, Troy, N. Y.
- Fishing Tackle.**
Dane, Stoddard & Kendall, Boston, Mass.
- Flint.**
Crystal Mills Co., Chester, Mass.
- Flint and Emery Paper.**
Baeder, Adamson & Co., Phila., Pa.
- Flue Cleaners.**
Mackey, Jas. T., St. Louis, Mo.
- Fodder Cutters.**
Silver Mfg. Co., Salem, O.
- Forges, Portable. &c.**
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Empire Portable Forge Co., Lansingburgh, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Ette & Henger Mfg. Co., St. Louis, Mo.
Haines & Zimmermann, Phila., Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Johnson, S. C., Racine, Wis.
Knapp & Cowley Mfg. Co., Bridgeport, Conn.
New Britain Hdw. Mfg. Co., New Britain, Conn.
North Bros. Mfg. Co., Philadelphia, Pa.
Peabody & Parks, Troy, N. Y.
Shurtz, Sidney & Co., Buffalo, N. Y.
Weiland, Chas., 149 Chambers St., N. Y.
Wilson, J. Fred, Worcester, Mass.
- Forgings, Iron and Steel.**
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambridge Steel-Cambridge Iron Co., Johnstown, Pa.
Eastern Forge Co., Boston, Mass.
Frankford Steel Co., Phila., Pa.
Scranton Forging Co., Scranton, Pa.
U. S. Projectile Co., Brooklyn, N. Y.
- Foundry Facings.**
S. Obermayer Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.
Solomon, Jno. M., Wilmington, Del.
- Foundry Middles.**
Estey, W. S., 65 Fulton, N. Y.
- Foundry Supplies.**
Collins, Victor, Detroit, Mich.
Diamond Clamp & Flask Co., Richmond, Ind.
S. Obermayer Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.
- Friction Clutches.**
Keystone Clutch & Mch. Wks., Phila., Pa.
Moore & White Co., Philadelphia, Pa.
- Friction Cone.**
Evans Friction Cone Co., Boston, Mass.
- Gas Producers.**
Wood, R. D. & Co., Philadelphia, Pa.
- Gas & Steam Fitters' Supplies.**
Pancoast, Henry B. & Co., Phila., Pa.
- Gauge, Rolling Mill.**
Haines Gauge Co., Philadelphia, Pa.
- Gear Cutters.**
D. E. Whiton Mach. Co., New London, Conn.
- Gears.**
Boston Gear Works, Boston, Mass.
Gleason Tool Co., Rochester, N. Y.
Krohn, Robt. & Son Co., Baltimore, Md.
U. S. Projectile Co., Brooklyn, N. Y.
- Glass Cutters.**
Monce, S. G., Bristol, Conn.
- Glass Tubes.**
Ashcroft Mfg. Co., 111 Liberty St., N. Y.
- Glue.**
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. W. & Co., Gloucester, Mass.
Russia Cement Co., Gloucester, Mass.
- Grass Catchers.**
Supplee Hardware Co., Phila., Pa.
- Grinding and Polishing Machines.**
Norton Emery Wheel Co., Worcester, Mass.
- Grindstone Dressing Machinery.**
Blake & Johnson, Waterbury, Conn.
- Grindstones.**
Cleveland Stone Co., Cleveland, O.
- Gunpowder, Makers of.**
Lafin & Rand Powder Co., 29 Murray St., N. Y.
- Hand Carts.**
Lansing Wheelbarrow Co., Lansing, Mich.
- Handles.**
New York Mallet and Handle Wks., 456 E. Houston St., N. Y.
- Hangers, Door.**
Coburn Trolley Track Mfg. Co., Holyoke, Mass.
- Lane Bros., Poughkeepsie, N. Y.**
Victor Mfg. Co., Newburyport, Mass.
- Hardware Comm'n Merchants.**
Doshier, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers St., N. Y.
Graham, John H. & Co., 111 Chambers St., New York.
Jacobus, W. H., 90 Chambers, N. Y.
- Hardware Manufacturers.**
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.
- Hardware Mfrs. Agents.**
Bingham, W. Co., Cleveland, O.
Clarke, Thomas, St. John, N. B.
Graham, John H. & Co., 113 Chambers, N. Y.
McCoy, Jos. F. Co., 26 Warren St., N. Y.
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
- Hardware Specialties.**
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co., New Haven, Conn.
Berge Bros., Philadelphia, Pa.
Empire Portable Forge Co., Lansingburgh, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Ette & Henger Mfg. Co., St. Louis, Mo.
Haines & Zimmermann, Phila., Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Johnson, S. C., Racine, Wis.
Knapp & Cowley Mfg. Co., Bridgeport, Conn.
New Britain Hdw. Mfg. Co., New Britain, Conn.
North Bros. Mfg. Co., Philadelphia, Pa.
Peabody & Parks, Troy, N. Y.
Shurtz, Sidney & Co., Buffalo, N. Y.
Weiland, Chas., 149 Chambers St., N. Y.
Wilson, J. Fred, Worcester, Mass.
- Harness Snaps.**
Covert Mfg. Co., West Troy, N. Y.
Coverly's Saddlery Wks., Farmer, N. Y.
Fitch, W. & E. T., New Haven, Conn.
- Hay Knives.**
Holt, Hiram, Co., E. Wilton, Me.
- Holting Machines.**
Box, Alfred & Co., 314 Green, Phila.
Brown Holting & Conveying Mch. Co., Cleveland, Ohio.
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E. & Son, Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 98 Liberty, N. Y.
Maris & Beekley, Philadelphia.
Moore Mfg. & Fdy. Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Spiegel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.
- Hollow Ware.**
Bronson Supply Co., Cleveland, Ohio.
Cleveland Stamping & Tool Co., Cleveland, O.
- Hollow Ware, Aluminum.**
Illinois Pure Aluminum Co., Lemont, Ill.
- Horse Nails, Makers of.**
Capewell Horse Nail Co., Hartford, Conn.
National Horse Nail Co., Vergennes, Vt.
Punam Nail Co., Neponset, Boston, Mass.
- Horse and Mule Shoes. Makers of.**
Bryden Horse Shoe Co., Catsaqua, N. Y.
Burden Iron Co., Troy, N. Y.
Crescent Horse Shoe & Iron Co., Max Meadows, Va.
Diamond State Iron Co., Wilmington, Del.
Old Dominion Iron & Nail Works Co., Richmond, Va.
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
Shoenberger & Co., Pittsburgh, Pa.
Standard Horse Shoe Co., Boston, Mass.
- Hose.**
N. Y. Belting & Packing Co., Ltd., 16 Park Row, N. Y.
- Hydrants, &c.**
McLean, John, 298 & 298 Monroe, N. Y.
- Hydraulic Forging.**
U. S. Projectile Co., Brooklyn, N. Y.
- Hydraulic Jacks.**
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.
- Ice-Cream Freezers.**
Clement & Dunbar, Phila., Pa.
North Bros. Mfg. Co., Phila., Pa.
Packer, C. W., Philadelphia, Pa.
White Mountain Freezer Co., Nashua, N. H.
- Injectors.**
Eynon-Evans Mfg. Co., Philadelphia.
Jenkins Bros., New York.
- Insurance, Boiler.**
Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Iron and Steel, Swedish.**
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
- Iron Commission Brokers.**
Corning, Edw. & Co., 29 B'way, N. Y.
Cotton, Barclay W. & Co., Phila.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Keeley, Jerome & Co., Philadelphia.
Lee, J. Ratnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Pilling & Crane, Philadelphia, Pa.
Wister, L. & R. & Co., Phila., Pa.
- Iron Ore.**
Naylor & Co., 45 Wall, N. Y.
Samuel, Frank, Philadelphia, Pa.
- Iron, Merchants.**
Barnes, C. K. & Co., Philadelphia, Pa.
Borden & Lovell, 70 West, N. Y.
Bussellus & Cumille, Philadelphia.
Corning Edw. & Co., 29 B'way, N. Y.
Cox, Justice, Jr., Philadelphia.
Cotton, Barclay W. & Co., Phila.
Hoffman, J. W. & Co., Philadelphia.
Leonard, J., 448 West St., N. Y.
Naylor & Co., 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St., N. Y.
Pierson & Co., 29 Broadway, N. Y.
Thomson, W. H. & Co., Phila., Pa.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, S. H. & Co., Philadelphia.
- Iron, Importers.**
Abbott Wheelock & Co., N. Y. and Boston
Lundberg, Gustaf, Boston, Mass.
- Iron, Sheet, Manufacturers of.**
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., McKeesport, Pa.
- Ironwork, Ornamental.**
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foss & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.
- Keys.**
Wollensak, J. F., Chicago, Ill.
- Ladders, Rolling.**
Coburn Trolley Track Mfg. Co., Holyoke, Mass.
- Ladies.**
Detroit Fdy. Equipment Co., Detroit, Mich.
- Lamp Stoves.**
Glazier Stove Co., Chelsea, Mich.
Plume & Atwood Mfg. Co., 18 Murray Street, New York.
- Lanterns.**
Bull Stamping Co., Detroit, Mich.
Steam Gauge & Lantern Co., Syracuse, N. Y.
- Lathes.**
Draper Machine Tool Co., Worcester, Mass.
Johnson, Israel H., Jr., & Co., Philadelphia, Pa.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.
- Lathing, Wire.**
Clinton Wire Cloth Co., Clinton, Mass.
N. J. Wire Cloth Co., Trenton, N. J.
Wright & Colton Wire Cloth Co., Worcester, Mass.
- Laundry Machines.**
Johnson, S. C., Racine, Wis.
- Lawn Mowers.**
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburgh, N. Y.
Coldwell Lawn Mower Co., Newburgh, N. Y.
Dille & McGuire Mfg. Co., Richmond, Ind.
Enterprise Mfg. Co., Philadelphia, Pa.
F. N. Mfg. Co., Richmond, Ind.
Henley, M. C., Richmond, Ind.
Mast, Foss & Co., Springfield, O.
Stearns, E. C. & Co., Syracuse, N. Y.
Supplee Hdw. Co., Phila., Pa.
- Lawn Rakes.**
Gibbs Mfg. Co., Canton, Ohio.
Graham, Jno. H. & Co., 113 Chambers St., N. Y.
Kohler, F. E. & Co., Canton, O.
Schaeffer & Co., Dayton, Ohio.
- Lawn Sprinklers.**
Ette & Henger Mfg. Co., St. Louis.
Gibbs Mfg. Co., Canton, Ohio.
McGowan, John H. Co., Cincinnati O.
Portland Lawn Sprinkler Co., Portland, Me.
- Lemon Squeezers.**
Ripley Mfg. Co., Unionville, Conn.
- Letters and Figures, Metallic.**
White, A. A. & Co., Providence, R. I.
- Letters, Paper.**
Tablet & Ticket Co., Chicago, Ill.
- Levels.**
Davis & Cook, Watertown, N. Y.
Richardson, O. F. & Son, Athol, Mass.
- Locks & Knobs, Manufacturers of.**
Deltz, A. E., 97 Chambers, N. Y.
Keyless Lock Co., Chicago, Ill.
Reading Hdw. Co., Reading, Pa.
Smith & Egg Mfg. Co., Bridgeport, Conn.
Yale & Towne Mfg. Co., Stamford, Conn.

Machinery.

Am. Tool Works, Cleveland, Ohio.
 Barnes, W. F. & John, Rockford, Ill.
 Sement, Miles & Co., Philadelphia, Pa.
 Bigelow, C. E., 45 Dey, N.Y.
 Birmingham Iron Foundry, Birmingham, Conn.
 Bliss, E. W. Co., Brooklyn, N. Y.
 Bogert, Jno. L., Flushing, N. Y.
 Briggs, Marvin, 12 Broadway, N. Y.
 Carlin's Sons, Allegheny, Pa.
 Cinn. Milling Mch. Co., Cincinnati, Ohio.
 Clapp, Geo. M., agt., 74 Cortlandt, N.Y.
 Detroit & Harvey Mch. Co., Baltimore, Md.
 Fitchburg Mch. Works, Fitchburg, Mass.
 Garvin Mch. Co., Laight & Canal Sts.
 Gould & Eberhardt, Newark, N. J.
 Hamilton Mch. Tool Co., Hamilton, O.
 Harrington, E. Son & Co., Phila., Pa.
 Henderer, A. L., Wilmington, Del.
 Hendey Machine Co., Torrington, Ct.
 Hill, Clarke & Co., Boston, Mass.
 Howard & Morse, 45 Fulton St., N. Y.
 Johnson, Israel H., Jr., & Co., Phila.
 Jones & Lamson Mch. Co., Springfield, Vt.
 Lovegrove & Co., Philadelphia, Pa.
 McCabe, J. J., 68 Cortlandt, N. Y.
 Machinists Supply Co., Rochester, N. Y.
 Manville, E. J. Mch. Co., Waterbury, Conn.
 Newark Mch. Tool Works, Newark, N. J.
 New Haven Mfg. Co., New Haven, Conn.
 Niles Tool Wks., 188 Liberty St., N. Y.
 Pittsburgh Mfg. Co., Pittsburgh, Pa.
 Place, Geo., 120 Broadway, N. Y.
 Poole, Robt., & Son Co., Baltimore, Md.
 Power Planer Co., Worcester, Mass.
 Pratt & Whitney Co., Hartford, Conn.
 Prentiss Tool & Supply Co., N. Y.
 Scranton Supply & Mch. Co., Scranton, Pa.
 Sellers, Wm. & Co., Phila.
 Seyfert's Sons, L. J., Philadelphia, Pa.
 Steptoe, J. & Co., Cincinnati, O.
 Stow Flexible Shaft Co., Ltd., Phila.
 Toomey, Frank, Philadelphia, Pa.
 Wetherill, Robert & Co., Chester, Pa.
 Wickes Bros., Saginaw, Mich.
 Wilson, W. A., Rochester, N. Y.

Machinery for Hardware Manufacturers.
 Add, Jno. & Son, New Haven, Conn.

Machine Knives.
 Lorin Coes & Co., Worcester, Mass.

Machine Screws.
 New Britain Hdw. Mfg. Co., New Britain, Conn.

Machine Tools.—See Machinery.

Machine Work.
 Papping, J., 58th St., & 11th Ave., N. Y. City.

Machinists' Scales.
 Coffin & Leighton, Syracuse, N. Y.
 Starrett, L. S., Athol, Mass.
 Valentine Tool Co., Hartford, Conn.

Machinists' Tools and Supplies.
 King, J. M. & Co., Waterford, N. Y.
 Sellers, Wm. & Co., Inc., Phila.

Mallets.
 N. Y. Mallet & Handle Works, N. Y.

Mangles.
 Johnson, S. C., Racine, Wis.

Measuring Tapes.
 Keuffel & Esser Co., 127 Fulton St., N. Y.
 Lufkin Rule Co., Saginaw, Mich.

Mechanical Instruction.
 Correspondence School of Mechanics
 Scranton, Pa.

Metals.
 Fearing, Wm. S., 100 Chambers, N. Y.
 Hendricks Bros., 49 Cliff, N. Y.
 Naylor & Co., 45 Wall, N. Y.

Metal Brokers.
 American Metal Co., N. Y.

Metallurgists.
 Britton J. Blodgett, Phil.

Milk Can Trimmings.
 Shepard, Sidney & Co., Buffalo, N. Y.

Milling Machines.
 Cln. Milling Mch. Co., Cincinnati, Ohio.

Mining Knives.
 Palmer Hdw. Mfg. Co., Troy, N. Y.

Mine Lamps.
 Darby, Edw. & Sons, Phila., Pa.
 Leonard, B. E., Scranton, Pa.

Mining Screens.
 Harrington & King Perforating Co.
 Chicago, Ill.
 Howard & Morse, 45 Fulton, N. Y.

Models, Makers of.
 Franklin, H. H. Mfg. Co., Syracuse, N. Y.
 Ideal Machine Works, Hartford, Conn.

Molding Sand.
 Obermayer, S. Co., Cincinnati, O.

Motors, Water and Electric.
 O. & C. Electric Co., 402 and 404
 Greenwich St., N. Y.
 Dallett, Thos. H. & Co., Phila., Pa.

Mill Machinery.
 Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Out) and Spikes.
 Borden & Love, 70 West, N. Y.
 Cumberland Nail & Iron Co., Phila.
 Oxford Iron Co., 81 Washington,
 Pottstown Iron Co., Pottstown, Pa.
 Riverside Iron Wks., Wheeling, W. Va.

Nickel Platers' Supplies.

Colburn Electric Mfg. Co., Fitchburg, Mass.

Novelty Shapes, Rollers of.
 Rowland, William & Harvey, Framford, Philadelphia

Novelty Manufacturers.
 Franklin, H. H. Mfg., Syracuse, N. Y.
 Ideal Machine Works, Hartford, Conn.

Nut Machines.
 Ounham Nut Mch. Co., Unionville, Ct.

Nuts, Bolts, &c., Makers of.
 American Bolt Co., Lowell, Mass.
 American Screw Co., Providence, R. I.
 Blake & Johnson, Waterbury, Conn.
 Eastern Forge Co., Boston, Mass.
 Jassell, Wm. H. Co., Pawtucket, R. I.
 Mt. Carmel Bolt Co., Mt. Carmel, Conn.
 Pennsylvania Bolt & Nut Co., Lebanon, Pa.
 Port Chester Bolt and Nut Co., Port Chester, N. Y.
 Russell, Burdall & Ward, Port Chester, N. Y.
 Sternbergh, J. B. & Son, Reading, Pa.
 Wilson, J. Fred., Worcester, Mass.
 Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
 Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Oil Stones.
 Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.
 Glacier Stove Co., Chelsea, Mich.

Ores.
 Water, Francis, Philadelphia, Pa.

Patent Shoes.
 Scranton Forging Co., Scranton, Pa.

Packing.
 Morrison, Robt., St. Louis, Mo.
 N. Y. Belting & Packing Co., Ltd., N. Y.

Padlocks.
 Ames Sword Co., Chicopee, Mass.
 Fraim, E. T., Lancaster, Pa.
 Hillbrand & Wolf, Phila., Pa.

Paint.
 Dixon, Jos. Crucible Co., Jersey City, N. J.

Paint Burners.
 Dangler Stove & Mfg. Co., Cleveland, O.

Paint Cans.
 Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Pants Stretcher.
 Covert Mfg. Co., West Troy, N. Y.

Patent Solicitors.
 Howson & Howson, Phila. & Wash'ton.
 Jenner, H. W. T., Washington, D. C.
 Stocking, E. B., Washington, D. C.

Perforated Metal.
 Clinton Wire Cloth Co., Clinton, Mass.
 Harrington & King Perforating Co., Chicago, Ill.
 Hendrick Mfg. Co., Ltd., Carbondale, Pa.

Phosphor Bronze.
 Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
 Crescent Phosphorized Metal Co., Philadelphia, Pa.
 Haik & Naumann, 616 Pearl, N. Y.

Picks and Mattocks.
 Flumo, Fayette R., Philadelphia, Pa.

Pig Iron.
 Houston, C. B. & Co., Philadelphia, Pa.
 Montour Iron & Steel Co., Danville, Pa.
 Naylor & Co., 45 Wall, N. Y.
 Pilling & Crane, Philadelphia, Pa.
 Samuel, Frank, Philadelphia, Pa.

Pig Iron Storage.
 Am. Pig Iron Storage Warehouse Co., 44 Wall, N. Y.

Pile Drivers.
 Vulcan Iron Wks., Chicago, Ill.

Pipe Bent.
 National Pipe Bending Co., New Haven, Conn.

Pipe Cutting and Threading Machines.
 Bignall & Keeler Mfg. Co., St. Louis, Mo.
 Merrill Mfg. Co., Toledo, O.
 Hancock Henry B. & Co., Philadelphia, Pa.
 Saunders' Sons, D., Yonkers, N. Y.

Pipe Grips.
 Prentiss Vise Co., 44 Barclay, N. Y.

Pipes, Fittings, &c., Makers of.
 McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, Makers of.
 Cumberland Nail & Iron Co., Phila.
 Donaldson Iron Co., Emaus, Pa.
 Riverside Iron Works, Wheeling, W. Va.
 Wood, R. D. & Co., Philadelphia, Pa.

Plane Irons, Manufacturers of.
 Buck Bros., Millbury, Mass.

Planes, Manufacturers of.
 Stanlev Rule & Level Co., N. Y.

Plated Ware.
 Boardman, I. & Son, New Haddam, Ct.
 Holmes & Edwards Silver Co., Bridgeport, Conn.
 Rogers, Wm. Mfg. Co., Hartford, Ct.

Plate Iron and Steel, Mfrs of.
 Extra-Standard Iron & Steel Co., Bridgeport, Ct.
 Lukens Iron & Steel Co., Coatesville, Pa.

Plating, Nickel, Brass and Silver.
 Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Pokers and Lifters.
 Troy Nickel Works, Troy, N. Y.

Polishing Machines.
 Watson & Stillman, 204 E. 43d, N. Y.

Post Hole Diggers.
 Buckeye Mfg. Co., Union City, Ind.
 Gibbs Mfg. Co., Canton, Ohio.
 Water, L. & R. Co., Philadelphia, Pa.

Poultry Nettings.
 Barnum, E. T., Detroit, Mich.
 Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
 N. J. Wire Cloth Co., Trenton, N. J.
 "Silver Finish."
 Tyler Wire Wks. Co., W. S., Cleveland, O.
 Wright & Colton Wire Cloth Co., Worcester, Mass.

Powder.
 Laffin & Rand Powder Co., 29 Murray New York Powder Co., 62 Liberty St., N. Y.

Power Hack Saws.
 Millers Falls Co., 93 Reade St., N. Y.

Power Hammers.
 Selden Mach. Co., New Haven, Conn.
 Dlenelt & Eisenhardt, Philadelphia.
 Dupont Mfg. Co., St. Johnsbury, Vt.
 Jenkins & Linzie, Bellefonte, Pa.
 Long & Allstatter Co., Hamilton, Ohio

Presses, Dies, &c.
 E. W. Bliss Co., Brooklyn, N. Y.
 Crosby, G. A. & Co., Chicago, Ill.
 Stark Mch. & Tool Co., Buffalo, N. Y.
 Stiles & Parker Press Co., Brooklyn, N. Y.
 Waterbury Mch. Co., Waterbury, Conn.

Presses, Power, Makers of.
 Bliss, E. W. Co., Brooklyn, N. Y.
 Manville, E. J. Mch. Co., Waterbury, Ct.
 Merriman, A. H., Meriden.
 Stark Mch. & Tool Co., Buffalo, N. Y.
 Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pulleys.
 Keystone Clutch Mch. Wks., Phila., Pa.
 Lake, J. H. & D. Co., Massillon, Ohio.

Pumping Machinery.
 Dean Bros. Steam Pump Works, Indianapolis, Ind.
 McGowan, J. H. & Co., Cincinnati, O.
 Mastin, J. & Son, Jersey City, N. J.
 Norwalk Iron Wks. Co., So. Norwalk, Conn.
 Southwark Fdy. & Mch. Co., Phila., Pa.
 Valley Pump Wks., Easthampton, Mass.
 Worthington, Henry R., 86 & 88 Liberty St., N. Y.

Pumps, Makers of.
 Bellevue Pump Co., Bellevue, Iowa.
 Deming Co., Salem, O.
 Douglas, W. & B., Middletown, Conn.
 Mast, Foss & Co., Springfield, O.
 Myers, F. E. & Bro., Ashland, O.

Punches and Shears, Hand and Power.
 E. W. Bliss Co., Brooklyn, N. Y.
 Cockburn Barrow & Mch. Co., Jersey City, N. J.
 Crosby, G. A. & Co., Chicago, Ill.
 Henderer, A. L., Wilmington, Del.
 Long & Allstatter Co., Hamilton, Ohio.
 Stark Mch. & Tool Co., Buffalo, N. Y.
 Stiles & Parker Press Co., Brooklyn, N. Y.
 Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
 Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.
 Perry, W. H. & Co., Providence, R. I.

Rat and Mouse Traps.
 Burditt & Williams, Boston, Mass.
 Eater, W. S., 65 Fulton, N. Y.
 Ripley Mfg. Co., Unionville, Conn.

Razors.
 Electric Outlery Co., 113 Chambers, N. Y.
 J. R. Torrey Razor Co., Worcester, Mass.

Reels.
 Hendryx, A. B. Co., New Haven, Conn.

Refrigerator Door Fasteners.
 Conroy, P. J. & Co., Philadelphia.

Refrigerators.
 Challenge Corp., Planter Co., Grand Haven, Mich.

Rivets.
 Blake & Johnson, Waterbury, Conn.
 Boyce Rivet Co., Muncie, Ind.
 Burden Iron Co., Troy, N. Y.
 Cobb & Drew, Plymouth, Mass.
 Sternbergh, J. B. & Son, Reading, Pa.
 Townsend, W. P. & Co., New Brighton, Pa.

Riveting Machines.
 Add, Jno. & Sons, New Haven, Conn.

Rock Drills.
 Rand Drill Co., 23 Park Place, N. Y.

Rolling Mill Machinery.

Birmingham Iron Fdry, Birmingham, Conn.
 Booth, The Lloyd, Co., Youngstown, O.
 Leeburg Foundry & Mch. Co., Pittsburgh, Pa.
 Mahoning Fdry & Mch. Co., Danville, Pa.
 Morgan Construction Co., Worcester, Mass.
 Robinson-Rea Mfg. Co., Pittsburgh.
 Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
 Trethewey Mfg. Co., Pittsburgh, Pa.
 Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Roll Lathes.
 Totten & Hogg Iron & Steel Fdry Co., Pittsburgh, Pa.

Rolls, Chilled, Sand and Steel.
 Booth, The Lloyd, Co., Youngstown, O.
 Garrison, A. Fdry. Co., Pittsburgh, Pa.
 Seaman, Sleeth & Black, Pittsburgh.
 Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
 Boston Bridge Works, Boston, Mass.
 Cambridge Roofing Co., Cambridge, O.
 Johns, H. W. Mfg. Co., 87 Maiden Lane

Rope and Web Goods.
 Covert Mfg. Co., West Troy, N. Y.
 Covert's Saddlery Wks., Farmer, N. Y.

Rope Wheels.
 Cresson, Geo. V. Co., Philadelphia, Pa.

Rubber Goods.
 Canfield, H. O., Bridgeport, Conn.

Rules, Manufacturers of.
 Keuffel & Esser Co., 127 Fulton St., N. Y.
 Lufkin Rule Co., Saginaw, Mich.
 Stanley Rule & Level Co., 29 Chambers, N. Y.

Rust Preventive.
 Bridgeport Gun Implement Co., 313-315 Broadway, N. Y.

Sand Paper.
 Baeder, Adamson & Co., Phila., Pa.

Sash Balances.
 Caldwell Mfg. Co., Rochester, N. Y.
 Fulman Sash Balance Co., Rochester, N. Y.
 Vanderblit Sash Balance Co., Canandaigua, N. Y.

Sash Cords and Chains.
 Morton, Thos., 65 Elizabeth, N. Y.
 Ossawann Mills Co., Norwich, Conn.
 Samson Cordage Works, Boston, Mass.
 Smith & Egge, Mfg. Co., Bridgeport.

Sash Locks.
 Ives, H. B. & Co., New Haven, Conn.

Sash Pullers.
 Empire Portable Forge Co., Lansingburgh, N. Y.
 Palmer Hardware Mfg. Co., Troy, N. Y.

Sash Weights.
 Brown, E. & Co., Philadelphia, Pa.

Saw Filing Machines.
 Diston, Henry & Sons, Philadelphia, Pa.

Saws, Makers of.
 piston, Henry & Sons, Phila., Pa.
 National Saw Co., 98 Reade St., N. Y.
 Simonds Mfg. Co., Fitchburg, Mass.

Saw Vises.
 Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Saw Sets.
 Taintor Mfg. Co., 84-86 Chambers, N. Y.

Scales, Manufacturers of.
 Buffalo Scale Co., Buffalo, N. Y.
 Chatillon, John & Sons, 85-89 Cliff, N. Y.

Scrapers, Road.
 Am. Steel Scraper Co., Sidney, Ohio.
 Kilbourne & Jacobs Mfg. Co., Columbus, O.
 Sidney Steel Scraper Co., Sidney, O.

Screens, Coal and Ore.
 Hendrick Mfg. Co., Ltd., Carbondale, Pa.

Screw Cutting Machinery.
 Wells Bros. & Co., Greenfield, Mass.
 Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
 Brown, R. H. & Co., New Haven, Conn.
 Mayhew, H. H. Co., Shelburne Falls, Mass.

Screw Plate and Pipe Cutter.
 Jarecki Mfg. Co., Erie, Pa.

Screws, Makers of.
 American Screw Co., Providence, R. I.
 Blake & Johnson, Waterbury, Conn.
 Wm. H. Haskell Co., Pawtucket.
 Miles, F. S., 205 Quarry, Philadelphia.
 Reynolds & Co., New Haven, Conn.
 Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
 Barnes, W. F. & John, Rockford, Ill.
 Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Sevthe Stones and Whetstones.
 Pike Mfg. Co., Pike Station, N. H.
 Cleveland Stone Co., Cleveland, O.

Shafting, Makers of.
 Cresson, Geo. V. Co., Philadelphia, Pa.
 Fairmount Mch. Co., Philadelphia, Pa.
 Fitzsimons & Co., Cleveland, Ohio.
 Sellers, Wm. & Co., Inc., Phila. Pa.
 Stow, C. Mfg., Binghamton, N. Y.

Shaped Iron and Steel, Manufacturers of.
 Extra-Standard Iron & Steel Co., Bridgeport, O.

Allentown Rolling Mill, Allentown, Pa.
Lockhart Iron & Steel Co., Pittsburgh, Pa.
Passaic Rolling Mill Co., Paterson, N.J.
Pottsville Iron & Steel Co., Pottsville, Pa.
Robert, A. & Co., Phila., Pa.
The Phoenix Iron Co., Phila., Pa.
Tudor Iron Works, St. Louis, Mo.

Shears and Scissors.

Agne Shear Co., Bridgeport, Conn.
Hainisch, R. Sons Co., Newark, N. J.

Sheet Iron and Steel, Manufacturers of.

Atlas-Standard Iron and Steel Co., Bridgeport, C.
Cambridge Iron & Steel Co., Cambridge, Ohio.
Chess Bros., Pittsburgh, Pa.
Mahoning Valley Iron Co., Livingston, Ohio.
Moorehead-McCleane Co., Pittsburgh, Pa.
Pierston & Co., 29 Broadway, N. Y.
Singer, Nimick & Co., Ltd., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Metal Work.

Clark & Cowles, Plainville, Conn.

Sheet Zinc.

Mathlessen & Hegeler Zinc Co., La Salle, Ill.

Shelf Brackets.

Koch, A. B. & Co., Peoria, Ill.

Slabs.

Douglas, W. & B., Middletown, Conn.

Skates, Ice.

Dame, Stoddard & Kendall, Boston, Mass.
Lovell, Jno. P. Arms Co., Boston, Mass.
Sticela, Sweet & Lyon, 35 Barclay St., N. Y.
Winslow, Sam'l, Skate Mfg. Co., Worcester, Mass.

Skates, Roller.

Henley, M. C., Richmond, Ind.
Winslow, Sam'l, Skate Mfg. Co., Worcester, Mass.

Smelting Works.

Reeves, Paul S., 760 S. Broad, Phila.

Soldering Coppers.

Olendenin Bros., Baltimore, Md.
Covert Mfg Co., West Troy, N. Y.

Speaking Tubes.

Ostrander, W. R. & Co., 204 Fulton St., N. Y.
Wollensak, J. F., Chicago, Ill.

Specialties, Pat. Articles.

Konigsow, O., Cleveland, O.
Rhodes, L. E. Co., Hartford, Conn.

Spelter.

Mathlessen & Hegeler Zinc Co., La Salle, Ill.

Spoons and Forks.

Boardman, L. & Son, New Haddam, Conn.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.

Hartley & Graham, 318-315 B'way, N. Y.

Spring.

Dunbar Bros., Bristol, Conn.
Miller & Van Winkle, Brooklyn, N. Y.
Morgan Spring Co., Worcester, Mass.
Boland, Wm. & Harvey, Phila., Pa.
Sabin Machine Co., Montpelier, Vt.
Tuck Mfg. Co., Brockton, Mass.
Washburn & Moen Mfg. Co., Worcester, Mass.
Wolf, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.

Fullman Sash Balance Co., Rochester, N. Y.
Stover Mfg. Co., Freeport, Ill.
Van Wagoner & Williams Co., 14 Warren St., N. Y.

Stamped Ware.

Am. Stamping Co., 104 & 106 John St., New York.

Stamping Works.

Cleveland Stamping & Tool Co., Cleveland, O.

Staples.

Cobb & Drew, Plymouth, Mass.
Titchener E. H. & Co. Binghamton N. Y.

Steam Gauges.

Ashcroft Mfg. Co., 111 Liberty St., N. Y.
Bristol Mfg. Co., Waterbury, Conn.

Steam Hammers, &c., Makers of.

Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia Street, N. Y.
Trethewey Mfg. Co., Pittsburgh, Pa.

Steam Heating.

Webster Warren & Co., Camden, N. J.

Steam Separators.

Gouvert Mfg. Co., 33 Cortland St. N. Y.
Harrison Safety Boiler Wks. Phila. Pa.

Steel, Cold Rolled Strip.

Wilnot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.

Hoeft, C. W., 52 Fulton St., N. Y.
Krosrud, W., 61 Fulton, N. Y.
Wolf, C. H., 177 William St., N. Y.

Steel Importers.

Abbott, Wheelock & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 9 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Millie, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'way, N. Y.
Wolf, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Steel (Mushet's Special).

Jones, B. M. & Co., Boston.

Steel Manufacturers.

Atlas-Standard Iron & Steel Co., Bridgeport, C.
Bethlehem Iron Co., S. Bethlehem, Pa.
Baker, Herman & Co., 103 Duane St. Carbon Steel Co., Pittsburgh, Pa.
Chester Steel Castings Co., Phila., Pa.
Crescent Steel Works, Brooklyn, N. Y.
Elken & Co., Hagen, Germany.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 9 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co., Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorehead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Taylor Iron & Steel Co. High Bridge, N. J.
Wordlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilnot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, Manufacturers' Agents.

Barnes, C. K. & Co., Philadelphia, Pa.
Corning, Edw. & Co., 29 B'way, N. Y.
Frasse Co., 19 Warren St., New York.
Lindsay, Jas. G. & Co., Phila., Pa.
Pierston & Co., 29 Broadway, N. Y.

Steel Rails, Manufacturers of.

Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Johnstown, Pa.
Montour Iron & Steel Co., Danville, Pa.
Riverside Iron Wks., Wheeling, W. Va.

Steel, Tool.

Frankford Steel Co., Philadelphia, Pa.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.

Bicycle Step Ladder Co., Chicago, Ill.
Croissant, M., Albany, N. Y.

Stocks and Dies.

Armstrong Mfg. Co., Bridgeport, Conn.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunders' Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stone Linings.

Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.

Cheney, S. & Son Manlius, N. Y.

Stove Trimmings.

Troy Nickel Works, Troy, N. Y.

Street Lamps.

Steam Gauge & Lantern Co., Syracuse, N. Y.

Strops.

Electric Cutlery Co. 113 Chambers, N. Y.
J. R. Torrey & Co., Worcester, Mass.

Structural Iron Work.

Boston Bridge Wks., Boston, Mass.
Lindsay, Jas. G. & Co., Phila., Pa.
Wrought Iron Bridge Co., Canton, O.

Sulphuric Acid.

Mathlessen & Hegeler Zinc Co., La Salle, Ill.

Tacks, Brads, Staples, &c.

Atlas Tack Corporation, Boston, Mass.
Clendenin Bros., Baltimore, Md.
Cobb & Drew, Plymouth, Mass.
Grand Crossing Tack Co., Grand Crossing, Ill.

Taps and Dies.

Futterfield & Co., Derby Line, Vt.
Carpenter, J. M., Tap & Die Co., Pawtucket, R. I.
Manning, Maxwell & Moore, 111 Liberty St., N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Laboratories.

Riehle Bros. Testing Mch. Co., Philadelphia.

Testing Machines.

Riehle Bros. Testing Mch. Co., Phila.

Theatrical Hardware.

Wollensak, J. F., Chicago, Ill.

Thill Springs.

Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.

Timber and Mineral Land.

Robertson, E. Co., Cincinnati, O.

Time Record.

Scattergood, H. W., Phila., Pa.

Tinning Process.

Sands, Thomas, Nashua, N. H.

Tin Plate Machinery.

Lloyd Booth Co., Youngtown, Ohio.

Tinware.

Am. Stamping Co., 104 & 106 John St.,

Tire Upsetters.

Butts & Ordway, Boston, Mass.

Toe Calks, Steel.

Burke, P. F., Boston, Mass.

Tool Chests.

Am. Tool Co., 200 W. Houston St., N. Y.

Tools.

Grown, R. H. & Co., New Haven, Conn.
Frasse Co., 19 Warren St., New York.
Mayhew, H. H. Co., Shelburne Falls, Mass.
Millers Falls Co., 93 Reade, N. Y.
Nicol & Co., Chicago, Ill.
Richardson, C. F. & Son, Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett, L. S., Athol, Mass.
Wilkinson, A. J. & Co., Boston, Mass.

Tools, Blacksmith and Wheelwrights.

Buffalo Forge Co., Buffalo, N. Y.
Butts & Ordway, Boston, Mass.
Champion Blower & Forge Co., Lancaster, Pa.
Plumb, Fayette B., Philadelphia, Pa.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Tools, Steam and Gas Fitters'

Saunders' Sons, D., Yonkers, N. Y.

Torches, Oil and Gasolene.

Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp Co., Cleveland, Ohio.

Transom Lifters.

Wollensak, J. F. Chicago, Ill.

Trucks, Manufacturers of.

Clark, G. F., Windsor Locks, Conn.
Lansing Wheelbarrow Co., Lansing, Mich.

Tubes, Seamless Drawn Copper.

Ansonia Brass & Copper Co., 19 and 21 Cliff St., N. Y.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.

Ellwood Shafting & Tube Co., Ellwood City, Pa.
Leng's John S. Son & Co., 4 Fletcher St., New York.
U. S. Projectile Co., Brooklyn, N. Y.

Tumbling Barrels.

Henderson Bros., Waterbury, Conn.

Turnbuckles.

Cleveland City Forge & Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, Makers of.

Cleveland Twist Drill Co., Cleveland, O.
Morse Twist Drill & Machine Co., New Bedford, Mass.
New Process Twist Drill Co., Taunton, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.

Best, Fox & Co., Pittsburgh, Pa.
Chapman Valve Mfg. Co., Boston.
Eynon-Evans Mfg. Co., Philadelphia, Pa.
Jenkins Bros., 71 John, N. Y.
Lunkelmeier & Co., Cincinnati, O.
McNab & Harlin Mfg. Co., 56 John, N. Y.
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.

Howard & Morse, 45 Fulton, N. Y.

Vise Jaws.

Newark Mch. Tool Co., Newark, N. J.

Vises.

Athol Machine Co., Athol, Mass.
Capital Mch. Tool Co., Auburn, N. Y.
Hollands Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y.
Millers Falls Co., 93 Reade St., N. Y.
Prentiss Vise Co., 44 Barclay, N. Y.
Van Wagoner & Williams Co., Warren St., N. Y.

Wagon Jacks.

Covert Mfg. Co., West Troy, N. Y.
Covert's Saddlery Works, Farmer, N. Y.

Washers.

Haskell, Wm. H. Co., Pawtucket, R. I.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.

Washing Machines.

Richmond Cedar Works, Richmond, Va.

Water Meters.

Worthington, Henry R., 86 & 88 Liberty St., N. Y.

Water Wheels.

Poole, Robt. & Son Co., Baltimore, Md.

Wheelbarrows.

Amer. Steel Scraper Co., Sidney, Ohio.
Cockburn Barrow & Mch. Co., Jersey City, N. J.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co., Sidney, O.
Sweatt Mfg. Co., Minneapolis, Minn.

Window Cord, Makers of.

Samson Cordage Works, Boston, Mass.

Wire, Manufacturers of.

Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Miller & Van Winkle, Brooklyn, N. Y.
New Castle Wire Nail Co., New Castle, Pa.
New Haven Wire Mfg. Co., New Haven, Conn.
Prentiss, Geo. W. & Co., Holyoke, Mass.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester.
Wetherell Bros., 93 Liberty St., N. Y.
Wolf, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cloth.

Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Easley, W. S., 86 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
Howard & Morse, 45 Fulton, N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Portland, N. Y.
Wright & Colton Wire Cloth Co., Worcester, Mass.
W. S. Tyler Wire Works Co., Cleve'd. Mass.

Wire Cutters.

King, J. M. & Co., Watertown, N. Y.

Wire Dies.

McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.

Wire Fences.—See Fencing, Iron and Wire.

Wire Goods, Manufacturers of.

Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
Ludlow-Saylor Wire Co., St. Louis.
Ossawa Mills Co., Norwich, Conn.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Portland, N. Y.
Williamson, C. T. Wire Novelty Co., Newark, N. J.

Wire Machinery.

Am. Tool Wks., Cleveland, O.
Manville, E. J. Mch. Co., Waterbury, Ct.
Morgan Construction Co., Worcester, Mass.
Waterbury Mch. Co., Waterbury, Conn.

Wire Straightening and Cutting Machinery.

Adt, John & Son, New Haven, Conn.

Wire Nails.

Bond Nail Co., Raynham, Mass.
Indiana Wire Fence Co., Crawfordsville, Ind.
Kilmer Mfg. Co., Newburg, N. Y.
New Castle Wire Nail Co., New Castle, Pa.
Phillips, Townsend & Co., Phila., Pa.
Salem Wire Nail Co., Salem, O.
Whitney, A. H. & Co., New York City.

Wire Rods, Steel.

New Castle Wire Nail Co., New Castle, Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wolf, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

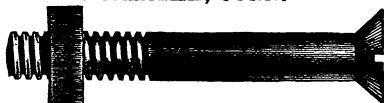
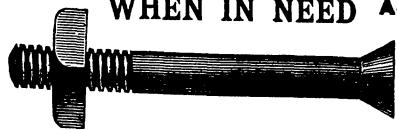
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ALPHABETICAL INDEX TO ADVERTISERS.

Abbott, Wheelock & Co.....	16	Bryden Horse Shoe Co.....	81	Cumberland Nail & Iron Co.....	15	Grant Corundum Wheel Mfg. Co.....	44
Acme Shear Co.....	65	Buck Bros.....	65	Cushman Chuck Co.....	42	Green, A. H.....	60
Adt, John & Son.....	40	Buckeye Engine Co.....	32	Dallett, Thos. H. & Co.....	44	Gurney, F. B.....	65
Etna-Standard Iron & Steel Co.....	18	Buckeye Mfg Co.....	67	Dame, Stoddard & Kendall.....	68	Haight & Clark.....	26
Aiken, Henry.....	25	Buffalo Forge Co.....	98	Dangler Stove & Mfg. Co.....	75	Haines & Zimmermann.....	69
Alexander Bros.....	34	Buffalo Scale Co.....	84	Darby, Edw. & Sons.....	8	Haines Gauge Co.....	25
Allentown Rolling Mills.....	25	Buhl Stamping Co.....	71	Davis & Cook.....	56	Halk & Naumann.....	3
Almond, T. R.....	37	Bullock Bellows Co.....	43	Davis, I. B. & Son.....	27	Halsey, Jas. T.....	42
Am. Bolt Co.....	89	Burden Iron Co.....	81	Davol, John & Sons.....	2	Halsey, W. S. & Co.....	23
Am. Metal Co.....	3	Burditt & Williams.....	71	Dayton Malleable Iron Co.....	98	Hamilton Machine Tool Co.....	35
Am. Pig Iron & Storage Warrant Co.....	17	Burgess & Loxley.....	98	Dean Bros. Steam Pump Works.....	33	Hammer & Co.....	84
Am. Screw Co.....	11	Burke, P. F.....	83	Deitz, A. E.....	85	Hardware Board of Trade.....	52
Am. Stamping Co.....	79	Burr & Houston Co.....	26	Deming Co.....	58	Harrington, E., Son & Co.....	46
Am. Steel Scraper Co.....	86	Bussenius & Cunliffe.....	49	Detrick & Harvey Machine Co.....	46	Harrington & King Perforating Co.....	12
Am. Tool Co.....	57	Butterfield & Co.....	42	Detroit Foundry Equipment Co.....	25	Harrison Safety Boiler Wks.....	32
American Tool Works.....	49	Butts & Ordway.....	39	Diamond Clamp & Flask Co.....	98	Hart, H. C. Mfg. Co.....	85
Ames Sword Co.....	77	C. & C. Electric Co.....	27	Diamond State Iron Co.....	81	Hart Mfg. Co.....	43
Ansonia Brass & Copper Co.....	2	Caldwell Mfg. Co.....	77	Dienelt & Eisenhardt.....	39	Hartford Steam Boiler Insp. and Ins.	
Arcade File Works.....	62	California Wire Works.....	5	Dille & McGuire Mfg. Co.....	88	Co.....	28
Arcade Malleable Iron Co.....	21	Cambria Iron Co.....	17	Disston, Henry & Sons.....	61	Hartley & Graham.....	1
Armstrong Mfg. Co.....	41	Cambridge Iron & Steel Co.....	21	Dixon, Jos., Crucible Co.....	64	Haskell, Wm. H. Co.....	90
Artificial Gas Engineering Co.....	24	Cambridge Roofing Co.....	13	Dodd, A. W. & Co.....	97	Hazard Mfg. Co.....	6
Ashcroft Mfg. Co.....	29	Canfield, H. O.....	35	Donaldson Iron Co.....	26	Heinisch's R. Sons Co.....	65
Athol Machine Co.....	59	Capewell Horse Nail Co.....	82	Doscher, Martin.....	65	Henderer, A. L.....	39
Atlas Mfg. Co.....	78	Capital Machine Tool Co.....	58	Douglas, W. & B.....	58	Henderson Bros.....	23
Atlas Tack Corporation.....	9	Carbon Steel Co.....	18	Draper Machine Tool Co.....	49	Hendey Machine Co.....	54
Babcock & Wilcox Co.....	31	Carlin's Sons, Thomas.....	49	Dudgeon, Richard.....	40	Hendricks Bros.....	2
Raeder, Adamson & Co.....	56	Carpenter, J. M. Tap & Die Co.....	97	Durbar Bros.....	5	Hendrick Mfg. Co., Ltd.....	7
Banker & White.....	63	Chadborne & Coldwell Mfg. Co.....	88	Dunham Nut Machine Co.....	48	Hendryx, A. B. Co.....	3
Bardsley, J.....	84	Challenge Corn Planter Co.....	74	Dupont Mfg. Co.....	36	Henley, M. C.....	88
Barns, C. K. & Co.....	19	Chambers Bros. Co.....	90	Durant, W. N.....	27	Herrick, J. A.....	25
Barnes, W. F. & John.....	37	Champion Blower & Forge Co.....	42	Dwight Slate Machine Co.....	41	Hertz, T. & Son.....	4
Barnett, G. & H.....	63	Champion Iron Co.....	7	Eagle Bicycle Mfg Co.....	97	Hillebrand & Wolf.....	38
Barnum, E. T.....	10	Chapman Valve Mfg. Co.....	27	Eastern Forge Co.....	12	Hill, Clarke & Co.....	50
Bass Foundry & Machine Works.....	32	Chatillon, John & Sons.....	71	Eccles, Richard.....	79	Hobson, F., Seaman & Co.....	16
Bay State Stamping Co.....	45	Cheney, S. & Son.....	21	Edge Moor Iron Co.....	28	Hoeft, C. W.....	63
Belden Machine Co.....	37	Chess Bros.....	21	Eicken & Co.....	17	Hoffman, C & A.....	64
Bell, Geo. E.....	45	Chester Steel Casting Co.....	23	Electric Cutlery Co.....	66	Hoffman, J. W. & Co.....	15
Bellevue Pump Co.....	59	Chrome Steel Works.....	22	Ellwood Shafting & Tube Co.....	15	Hogan, John L. & Co.....	15
Bement, Miles & Co.....	39	Church, Isaac.....	90	Emory, P. P. Mfg. Co.....	12	Hoggson & Pettis Mfg. Co.....	53
Bemis & Call Hardware & Tool Co.....	84	Cincinnati Milling Mch. Co.....	45	Empire Portable Forge Co.....	85	Hollands Mfg. Co.....	59
Berger Bros.....	71	Claflin Mfg. Co.....	35	Enterprise Mfg. Co. of Pa.....	75	Holmes & Edwards Silver Co.....	67
Best, Fox & Co.....	3	Clapp, Geo. M.....	50	Erie Engine Works.....	29	Holt, Hiram & Co.....	89
Bethlehem Iron Co.....	19	Clark, G. P.....	87	Estey, W. S.....	6	Houston, C. B. & Co.....	15
Bevin Bros. Mfg. Co.....	69	Clark & Cowles.....	87	Ette & Henger Mfg. Co.....	87	Howard Iron Works.....	57
Bickford Drill & Tool Co.....	47	Clarke, Thomas.....	60	Etting, Edw. J.....	15	Howard & Morse.....	7
Bicycle Step Ladder Co.....	70	Clement & Dunbar.....	57	Eureka Cast Steel Co.....	98	Howson & Howson.....	6
Bigelow, C. R.....	50	Clendenin Bros.....	10	Evans-Friction Cone Co.....	3	Ideal Machine Works.....	48
Signall & Keeler Mfg. Co.....	39	Cleveland Block Co.....	89	Eynon-Evans Mfg. Co.....	28	Ideal Mfg. Co.....	69
Billings & Spencer Co.....	84	Cleveland City Forge & Iron Co.....	1	F. & N. Mfg. Co.....	7	Illinois Pure Aluminum Co.....	70
Bingham, W. Co.....	66	Cleveland Stamping & Tool Co.....	70	Fairmount Machine Co.....	46	Indiana Wire Fence Co.....	7
Bissell, E. Son & Co.....	52	Cleveland Stone Co.....	45	Fay, J. A. & Egan Co.....	47	Ives, H. B. & Co.....	77
Blair Mfg. Co.....	87	Cleveland Twist Drill Co.....	44	Fearing, Wm. S.....	2	Jacobus, W. H.....	90
Blake & Johnson.....	10	Clinton Wire Cloth Co.....	8	Field, Alfred & Co.....	64	Jarecki Mfg. Co.....	41
Bliss Co., E. W.....	36	Cobb & Drew.....	6	Fitch, W. & E. T.....	97	Jeffrey Mfg. Co.....	34
Boardman, L. & Son.....	64	Coburn Trolley Track Mfg. Co.....	76	Fitchburg Machine Works.....	34	Jenkins Bros.....	1
Bogert, John L.....	48	Cockburn Barrow & Machine Co.....	87	Fitzsimons & Co.....	15	Jenkins & Lingle.....	37
Boker, Hermann & Co.....	16	Coes, Loring & Co.....	85	Flagg, Stanley G. & Co.....	98	Jenner, H. W. T.....	6
Bond Nail Co.....	10	Coes Wrench Co.....	85	Forehand Arms Co.....	67	Jessop, Wm. & Sons.....	16
Boone, W. C. Mfg. Co.....	23	Coffin & Leighton.....	41	Fraim, E. T.....	77	Johns, H. W. Mfg. Co.....	13
Booth, The Lloyd Co.....	26	Colburn, A. M.....	42	Frankford Steel Co.....	17	Johnson, I. H., Jr., & Co.....	47
Borden & Lovell.....	13	Colburn Electric Mfg. Co.....	27	Franklin, H. H. Mfg. Co.....	51	Johnson, S. C.....	74
Borgner, Cyrus.....	26	Colby Wringer Co.....	75	Frasse Co.....	57	Jones, B. M. & Co.....	19
Boston Bridge Works.....	13	Coldwell Lawn Mower Co.....	87	Frost Thill Spring Co.....	83	Jones & Lamson Machine Co.....	54
Boston Gear Works.....	29	Colliau, Victor.....	25	Fulton Iron & Engine Works.....	47	Jones, Jesse & Co.....	86
Box, Alfred & Co.....	42	Conroy, P. J. & Co.....	38	Gardner, Jas. & Son.....	23	Kayser, Ellison & Co.....	16
Boyce Rivet Co.....	98	Continental Iron Works.....	82	Garrison, A., Foundry Co.....	21	Keeley, Jerome & Co.....	15
Bradlee & Co.....	14	Corbin, P. & F.....	76	Gartland Foundry Co.....	23	Kennedy, Julian.....	24
Brass Goods Mfg. Co.....	2	Corning, Edw. & Co.....	14	Garvin Machine Co.....	50	Keuffel & Esser Co.....	59
Bridgeport Chain Co.....	66	Correspondence School of Mechanics.....	97	Gautier Steel Department.....	13	Keyless Lock Co.....	77
Bridgeport De-oxidized Bronze & Metal Co.....	2	Cotton, Barclay W. & Co.....	87	Gaylord, F. L. Co.....	3	Keys, W. W. & R. M. Co.....	3
Bridgeport Gun Implement Co.....	67	Covert Mfg. Co.....	79	Gibbs Mfg. Co.....	87	Keystone Clutch & Machine Works.....	42
Briggs, Marvin.....	50	Covert's Saddlery Works.....	55	Gilbert & Bennett Mfg. Co.....	8	Kilbourne & Jacobs Mfg. Co.....	86
Bristols' Mfg. Co.....	1	Cox, Justice, Jr.....	15	Glazier Stove Co.....	55	Kilmer Mfg. Co.....	7
Britton, J. Blodgett.....	25	Cramp, Wm. & Sons S. & E. B. Co.....	3	Gleason Tool Co.....	27	King, J. M. & Co.....	63
Broderick & Bascom Rope Co.....	6	Crescent Horse Shoe & Iron Co.....	83	Goodell Co.....	66	Knapp & Cowles Mfg. Co.....	70
Bronson Supply Co.....	71	Crescent Phosphorized Metal Co.....	3	Goubert Mfg. Co.....	31	Koch, A. B. & Co.....	62
Brown, E. E. & Co.....	77	Crescent Steel Co.....	22	Gould & Eberhardt.....	73	Kohler, F. E. & Co.....	88
Brown Hotsting & Conveying Mch. Co.....	34	Cresson, Geo. V. Co.....	43	Graham, John H. & Co.....	9	Konigslow, Otto.....	59
Brown, R. H. & Co.....	56	Cross & Speirs Machine Co.....	35	Grand Crossing Tack Co.....	9		
		Crown Smelting Co.....	3	Grand Rapids Cycle Co.....	69		
		Crystal Mills Co.....	62				

Krelscher, B. & Sons.....	23	Newark Machine Tool Works.....	54	Richardson, C. F. & Son.....	60	Tainton Mfg. Co.....	60
Krogsrud, W.....	63	New Britain Hardware Mfg. Co.....	87	Richmond Cedar Works.....	79	Tablet & Ticket Co.....	43
La Belle Steel Co.....	20	New Castle Wire Nail Co.....	10	Ridgway, Craig & Son.....	47	Talcott, W. O.....	35
Lafin & Rand Powder Co.....	21	New Haven Copper Co.....	2	Riehl Bros. Testing Machine Co.....	36	Taunton Locomotive Mfg. Co.....	27
Lake, J. H. & D. Co.....	42	New Haven Mfg Co.....	40	Ripley Mfg. Co.....	74	Taylor Iron & Steel Co.....	22
Lane Brothers.....	77	New Haven Wire Mfg. Co.....	6	Riverside Iron Works.....	22	Thomson, W. H. & Co.....	15
Lansing Wheelbarrow Co.....	56	N. J. Wire Cloth Co.....	8	Roberts, A. & P. & Co.....	17	Tiebout, W. & J.....	78
Laughlin, Alex. & Co.....	24	New Process Twist Drill Co.....	44	Roberts, Frank C. & Co.....	24	Titchener, E. H. & Co.....	7
Lee, J. Tatnall & Co.....	20	Newton & Shipman.....	16	Robertson, E. C.....	34	Tod, Wm. & Co.....	32
Lean, D. R. Co.....	25	N. Y. Belting & Packing Co.....	35	Robinson-Rea Mfg. Co.....	23	Toomey, Frank.....	50
Le Count, C. W.....	31	N. Y. Mallet & Handle Works.....	62	Rogers, The Wm. Mfg. Co.....	67	Torrey, J. R. Razor Co.....	65
Leechburg Foundry & Machine Co.....	23	N. Y. Powder Co.....	21	Rollason Gas Engines.....	29	Totten & Hogg Iron and Steel Fdry. Co.....	21
Leng's, Jno. S. Son & Co.....	98	Nicholson File Co.....	63	Rome Brass & Copper Co.....	2	Townsend, W. P. & Co.....	90
Leonard, B. E.....	15	Nicol & Co.....	78	Rowland, Wm. & Harvey.....	98	Trenton Iron Co.....	4
Leonard, J.....	89	Nicolls, Wheeler & Co.....	14	Russell, Burdall & Ward.....	98	Trethewey Mfg. Co.....	24
Leschen, A. & Sons Rope Co.....	6	Niles Tool Works.....	51	Russia Cement Co.....	57	Trimont Mfg. Co.....	84
Levis, Henry & Co.....	19	North Bros. Mfg. Co.....	17 & 55	St. Louis Bronze & Aluminum Works	3	Troy Nickel Works.....	65
Lidgerwood Mfg. Co.....	98	Northampton Cutlery Co.....	66	Sabin Machine Co.....	4	Tuck Mfg. Co.....	10
Lindsay, Jas. G. & Co.....	15	Northampton Emery Wheel Co.....	45	Salem Wire Nail Co.....	10	Tudon Iron Works.....	1
Link-Belt Engineering Co.....	37	Norton Emery Wheel Co.....	45	Samson Cordage Works.....	1	Tyler Wire Works Co. W. S.....	54
Lockhart Iron & Steel Co.....	20	Norton & Jones Machine Tool Works.	34	Samuel, Frank.....	14	Union Mfg. Co.....	43
Long & Allstatter Co.....	33	Norwalk Iron Works Co.....	33	Sands, Thomas.....	48	Union Metallic Cartridge Co.....	1
Levell, Jno. P. Arms Co.....	69	Nubian Iron Enamel Co.....	28	Saunders's Sons, D.....	40	U. S. Projectile Co.....	40
Lovegrove & Co.....	50	Obermayer, S. Co.....	18	Scattergood, H. W.....	53	Valentine, M. D. & Bro.....	26
Ludlow-Saylor Wire Co.....	7	Ogden & Wallace.....	19	Schaeffer & Co.....	86	Vallentine Tool Co.....	37
Lufkin Rule Co.....	70	Old Dominion Iron & Nail Works Co.	83	Scheeler & Sons.....	6	Valley Pump Works.....	33
Lukens Iron & Steel Co.....	14	Ossawan Mills Co.....	97	Schneider & Trenkamp Co.....	75	Van Dorn Iron Works Co.....	7
Lundberg, Gustaf.....	16	Ostrander Fire Brick Co.....	23	Scott, Geo. M.....	34	Vanderbilt Sash Balance Co.....	77
Lukenheimer Co.....	32	Ostrander, W. R. & Co.....	56	Seaville Mfg. Co.....	2	Van Wagoner & Williams Co.....	98
McCabe, J. J.....	49	Otto Gas Engine Works.....	30	Scranton Forging Co.....	81	Victor Mfg. Co.....	78
McCaffrey File Co.....	63	Oxford Iron & Nail Co.....	10	Scranton Supply & Machine Co.....	49	Vulcan Iron Works.....	21
McClure, Amster & Co.....	25	Packer, C. W.....	55	Seaman, Sleeth & Black.....	21	Wallace Wm. H. & Co.....	19
McCoy, Jos. F. & Co.....	60	Palmer & De Mooy.....	23	Sellers, Wm. & Co.....	46	Wardlow, S. & C.....	16
McFarland, Wm.....	4	Palmer Hardware Mfg. Co.....	56	Seneca Foundry Co.....	47 & 80	Washburn & Moen Mfg. Co.....	4
McGowan, J. H. & Co.....	33	Pancoast Henry B. & Co.....	41	Sessions Foundry Co.....	23	Waterbury Brass Co.....	2
McIlvain, Wm. & Sons.....	25	Passaic Rolling Mill Co.....	19	Seyfert's Sons, L. F.....	49	Waterbury Farrel Foundry & Ma- chine Co.....	33
McKay, Jas. & Co.....	15	Peabody & Parks.....	71	Shepard, Sidney & Co.....	60	Waterbury Machine Co.....	43
McKinney Mfg. Co.....	76	Peck, A. G. & Co.....	38	Shoenberger & Co.....	80	Watson & Stillman.....	40
McLean, John.....	29	Peerless Mfg. Co.....	75	Shultz Belting Co.....	1	Webster, Warren & Co.....	30
McLeod & Henry Co.....	23	Pennsylvania Bolt & Nut Co.....	89	Sibley & Ware.....	36	Weiland, Chas.....	52
McNab & Harlin Mfg. Co.....	32	Penna. Diamond Drill & Mfg. Co.....	27	Sickels, Sweet & Lyon.....	69	Wellman Iron & Steel Co.....	14
Machinists' Supply Co.....	50	Pennsylvania Mch. Co.....	49	Sidney Steel Scraper Co.....	87	Wells Bros. & Co.....	43
Mackey, James T.....	29	Perry, W. H. & Co.....	49	Sigourney Tool Co.....	41	Western Foundry Co.....	45
Mahoning Foundry & Machine Shop.....	23	Philadelphia Drop Forge Co.....	26	"Silver Finish".....	5	Western Wheel Works.....	69
Mahoning Valley Iron Co.....	19	Philadelphia Engineering Wks.....	29	Silver Mfg. Co.....	83	Wetherell Bros.....	16 & 20
Main Belting Co.....	35	Phillips, Townsend & Co.....	10	Simonds Mfg. Co.....	80	Wetherhill, Robt. & Co.....	97
Manning, Maxwell & Moore.....	44	Phoenix Horseshoe Co.....	81	Singer, Nimmick & Co.....	20	White, A. A. & Co.....	63
Manville Machine Co., E. J.....	48	Phoenix Iron Co.....	14	Smith & Egge Mfg. Co.....	42	White, L. & I. J. Co.....	65
Mansfield, & Dudley.....	50	Phoenix Iron Works Co.....	29	Smith, H. D. & Co.....	83	White Mt. Freezer Co.....	65
Maris & Beekley.....	46	Phosphor Bronze Smelting Co.....	3	Smith, J. D. Foundry Supply Co.....	23	Whitlock Coll Pipe Co.....	28
Maslin, J. & Son.....	33	Pierson & Co.....	17	Smythe, S. R. Co., Inc.....	24	Whitlock, Wm.....	43
Mason & Parker.....	65	Pike Mfg. Co.....	58	Solomon, Jno M.....	48	Whitney, A. R. & Co.....	17
Mason Regulator Co.....	97	Pilling & Crane.....	15	Sommer's Son, John.....	98	Whitton, D. E. Mch. Co.....	42
Mast, Poos & Co.....	7	Pittsburgh I. & S. Eng. Co.....	25	Southwark Foundry & Machine Co.....	29	Wickes, Bros.....	24
Matthiessen & Hegeler Zinc Co.....	2	Pittsburgh Mfg. Co.....	34	Speldel, J. G.....	46	Wickwire Bros.....	7
Maurer, H. & Son.....	23	Pittsburgh Reduction Co.....	54	Speirs, J. C. & Co.....	21	Wilcox & Howe Co.....	78
Mayhew, H. H. Co.....	62	Place, Geo.....	49	Spencer's I. S. Sons.....	26	Wiley & Russell Mfg. Co.....	41 & 98
Merriman, A. H.....	39	Plumb, Fayette R.....	66	Standard Fdry. & Mfg. Co.....	19	Williams, J. H. & Co.....	84
Merrill Bros.....	24	Plume & Atwood Mfg. Co.....	2 & 73	Standard Horse Shoe Co.....	81	Wilkinson, A. J. & Co.....	59
Merrill Mfg. Co.....	40	Pollock, W. B. & Co.....	32	Standard Steel Casting Co.....	98	Williamson, C. T. Wire Nov. Co.....	97
Miles, F. S.....	4	Poole, Robt. & Son Co.....	31	Standard Tool Co.....	44	Williamsport Wire Rope Co.....	6
Miller & Van Winkle.....	4	Pope Mfg. Co.....	55	Stanley Rule & Level Co.....	97	Wilmot & Hobbs Mfg. Co.....	1 & 98
Millers Falls Co.....	56 & 98	Popping, J.....	48	Stanley Works.....	78	Wilson, E. H. & Co.....	17
Milne, A. & Co.....	17	Port Chester Bolt & Nut Co.....	90	Stark Mch. & Tool Co.....	37	Wilson, John.....	64
Milton Mfg. Co.....	89	Portland Lawn Sprinkler Co.....	87	Starrett, L. S.....	59	Wilson, J. Fred.....	89
Miner & Peck Mfg. Co.....	39	Pottstown Iron Co.....	17	Steam Gauge & Lantern Co.....	71	Wilson, W. A.....	39
Mohr, J. J.....	15	Pottsville Iron & Steel Co.....	14	Stearns, E. C. & Co.....	54	Winslow, Sm'l. Skate Mfg. Co.....	68
Monarch Cycle Co.....	68	Powell Planer Co.....	50	Steel & Iron Improvement Co.....	54	Wister, Francis.....	15
Monce, S. G.....	84	Pratt & Cady Co.....	97	Steptoe, J. & Co.....	52	Wolcott & West.....	53
Montour Iron & Steel Co.....	19	Pratt & Whitney Co.....	43	Sterling Emery Wheel Co.....	45	Wolff, C. H.....	77
Moore, Dr. Gideon E.....	54	Prentiss, Geo. W. & Co.....	5	Sternbergh, J. H. & Son.....	90	Wolff, R. H. & Co. Ltd.....	5
Moore Mfg. & Foundry Co.....	46	Prentiss Tool & Supply Co.....	49	Stevens Arms & Tool Co.....	70	Wollensak, J. F.....	58, 60 & 78
Moore & White Co.....	46	Prentiss Vise Co.....	58	Steward & Romaine Mfg. Co., Ltd.....	39	Wood Alan & Co.....	15
Moorhead-McCleane Co.....	20	Pullman Sash Balance Co.....	84	Stiles & Parker Press Co.....	36	Wood, R. D. & Co.....	26
Morgan Construction Co.....	4	Putnam Nail Co.....	79	Stirling Co.....	30	Wood, W. Dewees Co.....	20
Morgan Spring Co.....	4	Quint, A. D.....	43	Stocking, E. B.....	6	Woodruff, W. W. & Sons.....	67
Morrison, Robert.....	29	Rainey, W. J.....	1	Storm Mfg. Co.....	58	Worcester Mch. Screw Co.....	90
Morse Twist Drill & Machine Co.....	44	Rand Drill Co.....	31	Stover Mfg. Co.....	77	Worthington, Henry R.....	33
Morse, Williams & Co.....	49	Randolph & Clowes.....	1	Stow Flexible Shaft Co.....	44	Wright & Colton Wire Cloth Co.....	8
Morton, Thos.....	78	Read, Wm. & Sons.....	97	Stow Mfg. Co.....	44	Wrought Iron Bridge Co.....	12
Moseley Iron Bridge & Roof Co.....	13	Reading Hardware Co.....	78	Sturtevant, B. F. Co.....	30	Wurster, F. W. & Co.....	98
Mount Carmel Bolt Co.....	97	Reece, Edw. F.....	42	Sturtevant Mill Co.....	45	Wyman & Gordon.....	26
Myers, F. E. & Bro.....	58	Reeves, Paul S.....	98	Supplee Hardware Co.....	88	Yale & Towne Mfg. Co.....	47 & 57
National Horse Nail Co.....	83	Reynolds & Co.....	6	Sweatt Mfg. Co.....	86		
National Pipe Bending Co.....	28	R.I. Perkins Horse Shoe Co.....	81	Sweetser, W. A.....	19		
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Naylor & Co.....	19						

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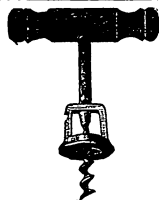
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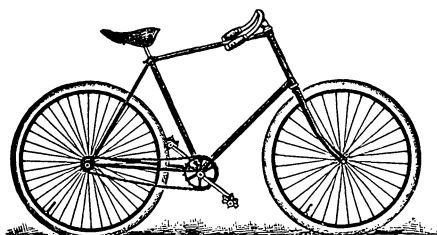
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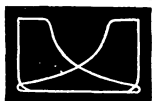
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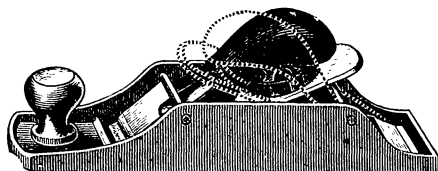
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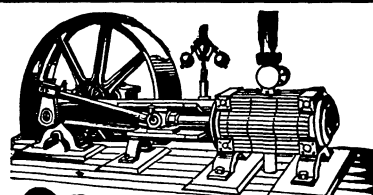
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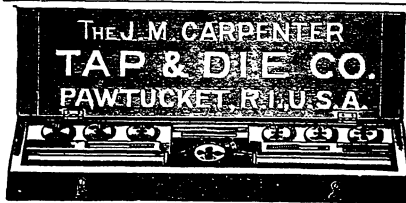
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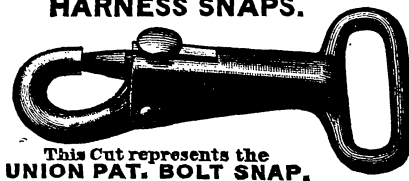
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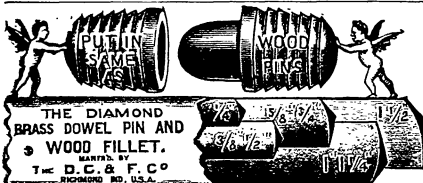
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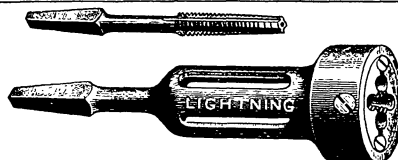
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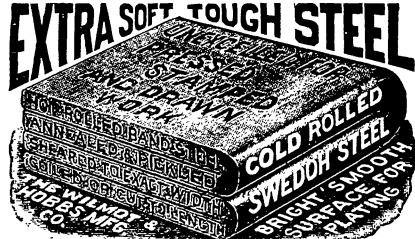
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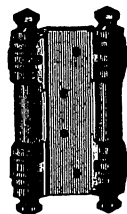
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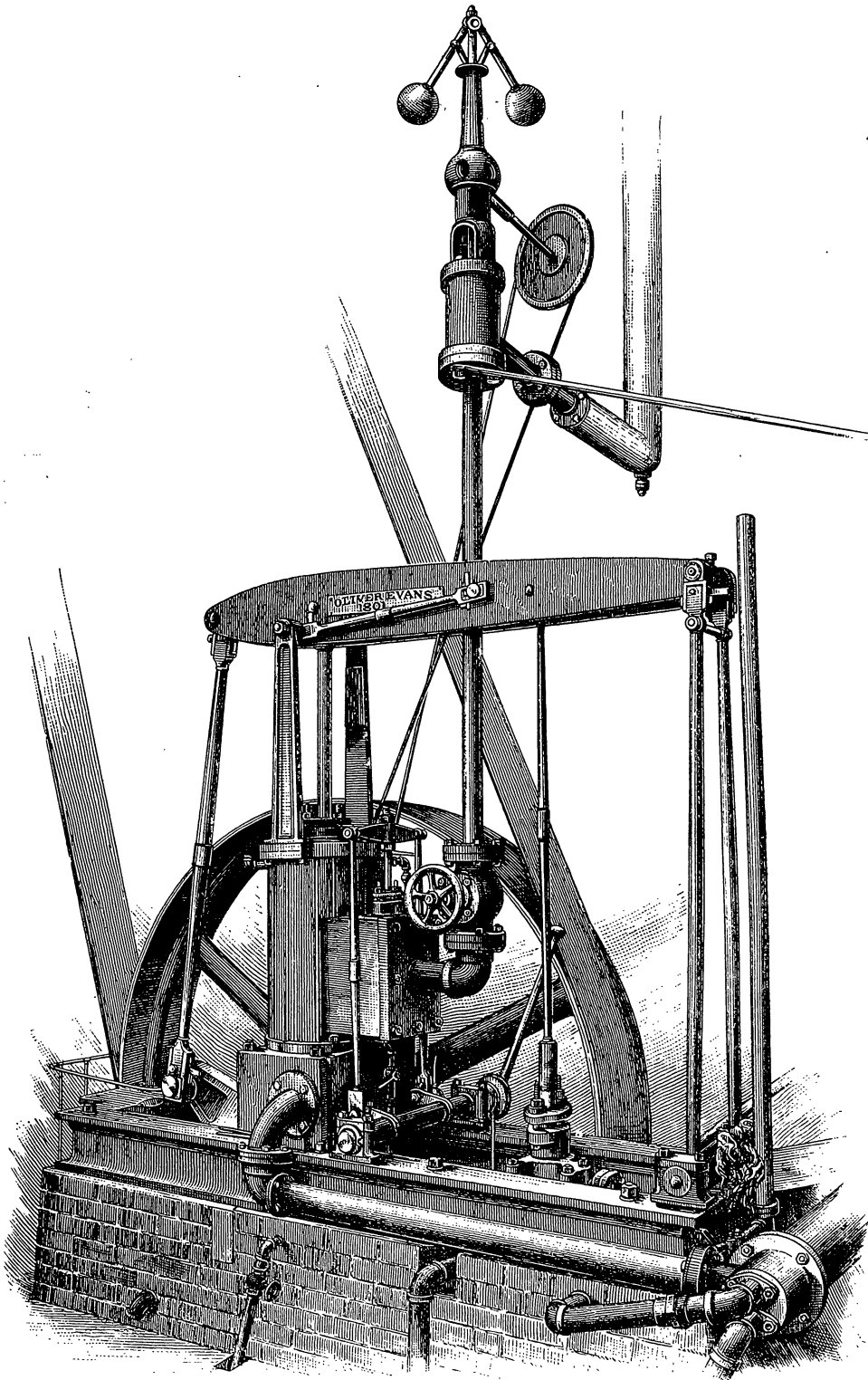
An Old Grasshopper Engine.

A peculiar interest attaches to the old grasshopper engine because of its

plate bearing the inscription, "Oliver Evans 1801," the date of his patent. The engine was in constant service in the smith shop of the above company until a few months since, when it was

of the cylinder from its original diameter of $8\frac{1}{4}$ inches to 10 inches.

There are no crosshead and guides on the engine, it being provided with a parallel motion (the invention of



AN OLD GRASSHOPPER ENGINE.

design, age and the work it has been doing. It was built by the I. P. Morris Company of Philadelphia, in 1845, in accordance with designs made by Oliver Evans. On the beam is a brass name

presented to the University of Pennsylvania, where it now is. Although the engine has been run constantly at its full rated power of 35 horse, the only repair necessary has been the reboring

Watt) which gives a travel, at the point where the piston rod is attached to the beam, in a line with the center of the steam cylinder. Projecting from the upper cylinder head are two standards,

to which are journaled the ends of two rods whose opposite ends are journaled to the beam, as shown. That end of the beam opposite the crank is held to the bed by two rods journaled at each end. This construction is simple and effective and insures the travel of the piston rods in the center line of the cylinder.

Some of the principal dimensions of the engine are: Shaft, 5½ inches in diameter; crank pin, 2 inches in diameter by 2½ inches long; length of beam, 6 feet; diameter of cylinder, 10 inches; length of stroke, 18 inches; floor space occupied, 8 x 2 feet 4 inches.

For the foregoing points in regard to the engine we are indebted to H. W. Hand, superintendent of the I. P. Morris Company.

British Tin Plate Exports for 1893.

* The returns of the British Board of Trade for 1893 include the following statistics of the exports of tin and terne plates from Great Britain and for the entire year as compared with those for the two previous years:

Shipments to.	Exports, year, in tons.		
	1891.	1892.	1893.
United States...	325,143	278,477	255,583
Russia.....	30,802	27,914	30,526
Germany.....	2,704	3,931	3,137
Holland.....	4,830	4,386	5,323
France.....	6,242	9,433	11,321
Portugal (Azores and Madeira)...	4,618	5,183	5,861
Italy.....	8,932	6,473	4,004
Roumania.....	3,988	4,560	4,286
Brazil.....	4,810	6,073	4,340
Argentina.....	3,572	3,085	3,302
East Indies.....	4,148	4,507	6,198
Australasia.....	10,497	7,927	7,704
British North America.....	19,935	14,826	16,000
Other countries.	18,958	18,238	21,648
Totals, in tons.	448,379	395,449	379,233

It will be seen from the above table that the total shipments of tin and terne plates to the United States last year were 22,894 tons less than those in 1892, while they in turn fell short of 1891 shipments by 46,666 tons. Taking into consideration the trade depression of last year, which unquestionably caused a material curtailment of imports, and setting it against the increase in consumption of tin plates which develops annually in the United States, it is fair to infer that they would about balance each other. The deficit in imports for the year 1893 would, therefore, be filled by the plates of domestic manufacture, which have been produced to about that amount during the year.

Meurer Bros. Company's New Tin Plate Works.

Apparently undaunted by the chance of tariff revision, Meurer Bros. Company of Brooklyn, N. Y., are rapidly pushing the construction of their new tin plate manufacturing plant at 575-577 Flushing avenue in that city. The building which has been erected for this purpose adjoins the former premises of the firm, and is situated on a lot 50 x 95 feet in area, which it entirely covers. It is constructed on a very substantial scale, and will be entirely fire proof. The thick walls are of brick, with iron spans and girders, covered by a corrugated iron roof. The latter will be put on immediately, and skylights reaching the entire length

of the shop will be fitted, giving ample light and ventilation. A floor of concrete is about to be laid down, so that there will be absolutely nothing in the structure of an inflammable nature. The shop is of unusual height, reaching above the second story of the adjoining buildings. Foundations have been laid for six large tinning pots, to be ranged along the west side of the building. Two Phillips tinning machines are already delivered and will be installed very shortly. Four more are ordered and will be put in place as soon as received. Refining furnaces for the production of stereotype and Babbitt metal, &c., will occupy a portion of the remaining space, together with the other requisites of a tin plate plant. Ample space will be left for the insertion of additional tinning pots as requirements arise. The capacity of the works when in full operation will be about 2000 boxes weekly, and Messrs. Meurer propose embarking at once in the manufacture of a full line of both bright and roofing tin. Their standard brands of terne, which are already well known to the trade, namely Meurers' Roofing, Pullman and Flushing, will of course form the bulk of their output at first. Unless the severity of the weather or other causes interfere with the work, the firm hope to have their tin plate works in operation by the middle of February.

Tin Plate Report to September 30, 1893.

The quarterly report on the production of tin plates in the United States for the quarter ended September 30, 1893, transmitted by Colonel Ira Ayer, special agent of the Treasury, was promulgated from the Department this week. It shows that the total product of tin and terne plates by 35 reporting firms was 27,145,480 pounds, as against 39,543,587 pounds during the previous quarter. Of this output 8,794,027 pounds were made from American rolled black sheets. In addition, the quantity of American sheet iron and steel made into articles and wares tinned or terne plated was 1,052,813 pounds; so that the total production for the quarter, subject to comparison with net imports, under Secretary Carlisle's ruling of the act, was, including the last named amount, 9,257,610 pounds. The aggregate output for the quarter from all sources was 28,198,293 pounds. Of the output of commercial plates, 13,861,317 pounds were coated with tin and 13,284,317 pounds were terne coated, as compared with 20,748,427 pounds and 19,425,336 pounds respectively in the June quarter, so that the relative proportion of each has been well maintained. Nearly 96 per cent. of the commercial plates belonged to the lighter class. The production of black plates in the United States during the September quarter was 11,355,868 pounds, against 29,988,513 pounds in the previous quarter. Of the 35 tin plate manufacturing concerns making sworn returns, 28 used American black sheets wholly or in part, and the aggregate consumption of such sheets in the various forms of tin plate manufacture was equal to 86 per cent. of the entire production. In the June quarter the proportion was 82 per cent. of the entire production.

The members of the Amalgamated Association of Iron and Steel Workers who are employed in mills in the Mahoning Valley are showing considerable

activity at present, and it is expected that meetings will be held at stated intervals from now until April 1, on which date a conference will be held between officials of this organization and the Valley mill owners relative to the proposed reduction in the price of boiling from \$4.75 to \$3.50 per ton. A meeting was held in Niles, Ohio, last week, at which officials of the Amalgamated Association made addresses. It is stated that the Coleman-Shields Company have made a proposition to their employees regarding reduction in wages sufficient to put them on an equitable basis with Pittsburgh competitors who have recently made a reduction in the price of boiling to \$4.00 per ton.

Shipbuilding on the Lakes.

There are building under contract in lake shipyards at the present time, according to the *Marine Review*, 28 vessels, having a carrying capacity of 26,400 gross tons and a valuation of \$2,538,500. By comparison with the following table, showing building operations in hand in lake shipyards in the month of December of the past eight years, it will be seen that the tonnage is less than half and the valuation but little more than half that shown in any year during that time:

December 15.	Number of boats.	Capacity. Gross tons.	Valuation
1886.....	31	65,750	\$4,074,000
1887.....	60	108,525	8,325,000
1888.....	59	100,950	7,124,000
1889.....	56	124,750	7,866,000
1890.....	38	77,950	5,337,000
1891.....	45	76,000	4,896,000
1892.....	49	68,470	6,909,500
1893.....	28	26,400	2,538,500
Totals....	366	658,795	\$47,070,000

This condition of affairs, the *Review* believes, may probably be improved by contracts which will be let during the spring months, as the possibility exists that negotiations now pending will result later on in the construction of four or five steamers of about 2500 tons and a valuation of \$225,000 each. These orders, which will depend upon a general improvement in business, will, if placed, redeem the lake shipbuilding industry from what will otherwise be an unprofitable season. A noteworthy fact in connection with the vessels now in hand is that wooden shipbuilding, which has been completely eclipsed by steel for several seasons, makes a much better showing than heretofore. This is attributed to the fact that builders having timber can now procure labor so cheaply that they can afford to build on their own account and hold the boats until freight rates return to a profitable basis.

Preparations are being made at the Government torpedo station, Newport, R. I., for a series of experiments to determine the relative value of English and American air compressors, such as are used for charging Whitehead torpedoes. Up to a recent date, English machines have been exclusively used, but some of American design have lately been ordered, which, it is thought, possess points of superiority over the English apparatus. The importance of these tests lies in the fact that upon the serviceability of the air compressors mainly depends the successful operation of the Whitehead torpedoes.

The Cost of Billets and of Rails.

In the course of his discussion of the defeated amendment to the Wilson bill, to put steel rails on the free list, Hon. John Dalzell of Pittsburgh presented the following admirable summary of the considerations affecting the cost of steel rails as compared with the cost of soft steel billets:

1. A rolling mill plant for the manufacture of rails is of necessity much more expensive, contains heavier, more expensive and more complicated machinery than a plant designed only for the manufacture of billets. The ground space, both under roof and out of doors, is very much larger for steel rails.

2. The high carbon in rails—viz., about four times that in billets—adds to the cost for recarburizers and labor and fuel for handling and melting same.

3. Multiplicity of rail sections and weights requires a larger stock of ingot molds of assorted sizes; the ingots have to be made heavier in proportion to the ton of finished rails rolled from them in proportion to the finished billets, consequently there is a greater loss in scrap.

4. To insure the production of perfect rails made from ingots, which by their very nature are liable to imperfections, a larger amount of scrap has to be cut off and handled between the ingot and the finished rails than in the case between ingots and finished billets.

5. Most of the billets rolled in this country are made from the ingot on one train of rolls with one engine, whereas ingots for rails which are of a complicated section have to pass through two or even three additional trains, each with an engine and crew, thereby involving additional cost for labor, power, maintenance, &c.

6. Accuracy in the cross section of a billet is never demanded. In a rail a variation in height, due to the natural wearing of the rolls, equal to so little as $\frac{1}{8}$ inch, will cause its rejection. This causes frequent roll changes and large replacements at heavy expense.

7. Billets when rolled are chopped while hot by shears into lengths required, which are not expected to be extremely accurate, because the billet is not a finished product. Rails are sawed to standard lengths, usually 30 feet, and a variation in this total length of $\frac{1}{2}$ inch under or over causes the rejection of the rail.

8. Owing to its simple form, a billet is an easy section to roll, and defective billets are few in number, whereas a rail with thin flanges and web and relatively thick head is a very difficult section, and the loss to the manufacturer on defective rails is very considerable. Billets are hardly inspected at all; rails are most rigorously inspected, both by the mill and the purchaser, and frequently rejected for most trifling defects, after considerable expense has been put upon them in rolling, straightening, cold sawing, drilling, chipping, marking, &c. The loss by the rejection of these defective rails, which may amount to as much as 10 per cent. upon some of the most difficult sections, adds very largely to the cost of the rails that pass inspection.

9. To make the perfect rails that are commercially required and of the many sections in use upon our railroads requires an expense for rolls which I think I am safe in estimating at four or five times the cost for rolls to make an equal tonnage of billets.

10. Not only does the rail manufact-

urer incur all the additional expenses named above, a large proportion of which expense is put upon the rail for the purpose of making it as free from defects and thereby as safe as possible to bear the traffic to which it is submitted, but when all that is done the manufacturer, as a rule, has to stand behind the quality of his goods with a guarantee of not less than five years against any defects in either material or workmanship that may develop during that period.

The Iron Trade of North Britain.

We learn from private advices that the general state of trade in the North of England and throughout the Glasgow district is in a quiet condition, although some rolling mills and other industries are fairly active after a brief shut down for annual inventory, which takes place in accordance with usual custom during the first ten days of the new year.

The lever of trade is the shipbuilding industry. In this branch there is promise of considerable activity in the near future, the British Government having placed an order with the Thomsons of Clyde Bank for an armed cruiser, to cost £750,000. This contract was followed by an order from the Cunard Shipbuilding Company for two freight steamers of heavy tonnage to be placed in the North American trade. This is an insignificant amount of work for yards possessing such capacity as those of the Clyde, but it is of material assistance in such dull times. The smaller shipyards are doing very little.

At Barrow-in-Furness and Belfast the shipyards have a great deal more work on hand. It is reported upon good authority that the Naval Armaments Company of Barrow have received orders for 13 war vessels, one of them to be the same type as the vessel ordered from the Thomsons of Glasgow. Wolves of Belfast have several vessels on the stocks, and it may be truthfully stated that the outlook is far brighter for Barrow and Belfast at present than it is for Glasgow, so far as shipbuilding is concerned. When that industry stops, nearly everything stops.

The ship and boiler plate trade is dull, yet a large new plant is being built. A bitter fight among makers is expected before very long, meanwhile ship plates are selling at £5. 5/ to £5. 10/ per ton (2240 pounds) and boiler plate at £5. 12/6 to £6, f.a.s. Glasgow, cash discount 5 per cent. The mills making angles, channels, tees and bulbs are poorly employed and prices are away down. Prices, £4. 12/6 per ton, f.a.s. Glasgow, usual terms.

The bar and sheet mills are reported fairly active. Light sections of bars, angles, &c., are in demand, but not in quantities large enough to cause excitement. Some good sized orders have recently been entered for sheets at the following prices, f.a.s. Glasgow, cash discount 5 per cent.:

	Steel.	Iron.
	Per ton (2240 lb.).	
Nos. 7 to 12 gauge.....	£6. 15/0	£6. 12/6
Nos. 13 to 20 gauge.....	7. 5/0	7. 0/0
Nos. 21 to 24 gauge.....	8. 10/0	7. 12/6
Nos. 25 to 27 gauge.....	10. 0/0	8. 5/0

In general engineering works, foundries and allied trades many complaints are heard regarding scarcity of work, and the general tendency is toward reduced values. The condition of affairs between coal operators and miners is

regarded as not trustworthy, and an outbreak is daily expected, although it is hoped that the National Board of Conciliation will adjust matters satisfactorily to all concerned. If another strike should occur it is expected that prices of iron and steel products will advance.

Scotch brokers have just issued their annual reports and, as usual, they require a great deal of study in order to find their meaning. There appears to be a supposition on the part of writers on iron topics in North Britain that readers know all about the matter, and it is consequently immaterial whether the subject is commenced at the cause, intermediate happenings or the result, and so far as future prospects are concerned predictions are qualified to such an extent that it becomes a difficult matter to get at the real meaning intended to be conveyed.

So far as can be learned from literature of this description "bawbees" have been split on the pig iron corner of the Glasgow Exchange the same last year as ever. American brokers imagine that it is drawing a pretty fine line when dimes rule quotations, but a Scotchman will fight for an hour to gain the advantage of a halfpenny per ton.

The record of the past year does not show any remarkable fluctuations in warrants. The figures are as follows:

	Lowest.	Highest.
Cleveland.....	33/7½	36/4
Cumberland Hematite....	44/4	46/6
Cleveland Hematite.....	42/6	41/2½

Scotch warrants fluctuated in a greater degree, due to the corner early in the year. February 20 closed at 51 shillings, and three days later the price dropped to 42 shillings. Since that time figures fluctuated between 40 shillings and 2½ pence, May 22, and 43 shillings and 4 pence, January 5, 1894.

Looking backward it is noticed that those who speculated during the miners' strike of the Midland district, by buying warrants, did not realize their expectations, but came out on the "short end." It is only rarely that cornering is a success on the Glasgow Exchange.

Looking forward there is not much said of an encouraging nature; prospects are not considered bright. Production increased 108,000 tons in the Scotch district last year, notwithstanding troubles among miners and other disturbances. At present stocks in consumers' yards are low, and also at stores. The cost of production is calculated to be high enough to cause reduced output, but it is doubtful whether or not these facts will cause higher prices for pig iron. The general facts are that steel prices average 7 shillings and 6 pence per ton lower than in 1886, which were the lowest recorded until the present time. On the other hand, pig iron prices are not as low as in 1886 by 5 shillings to 6 shillings per ton. Foreign demand is dull for finished and unfinished material, and there is very little upon which hopes for improved trade can be based.

The Eastern capitalists interested in the great improvements at Sioux City, Iowa, which were managed so disastrously for them, have formed a company known as the Credits Commutation Company, to rehabilitate their interests. Additional capital will be invested, the works to be sold will be bought in, partly finished improvements will be completed, and an entirely fresh start made.

Tin Mill Practice.

Considering the authenticated fact that nearly \$5,000,000 have already been invested in the tin plate industry of the United States, and the additional fact that several new plants are now in process of construction, it is about time to look for some important improvements over imported methods used in the manufacture of this staple commodity.

During the introduction of the industry Americans have been almost entirely dependent upon the brains and ingenuity of foreigners for best results. Agents have been sent to Wales to be-

branches of industry among the British, and secrets are only transferred from one to another after a long term of apprenticeship. In this country it is a more difficult matter to keep such secrets. Young men want to know, and if not told will find out, manufacturers exchange ideas more freely and mutual advantages are enjoyed. Such a course of action is necessary to build up the new and important tin plate industry.

Improvements which have been made public up to date pertain mostly to minor details of pickling machines or tinning pots, and in some instances noticeable changes have been made, the importance and value of which is not yet definitely determined. Among

gested, loaded boxes and stands, or bottom plates may be moved easily by two men to and from any part of the annealing house, the means used being an inexpensive hand power traveling crane, not necessarily of a capacity exceeding 3 tons. This crane, which is illustrated in Fig. 1, though not in detail, is constructed to act quickly and steadily, moving boxes without disturbing their contents. The racking gear moves the carriage of the crane to right or left on the beam, and by a similar contrivance the whole device is moved from one end of the building to the other.

Before describing the furnace it is necessary to state that, for the effective

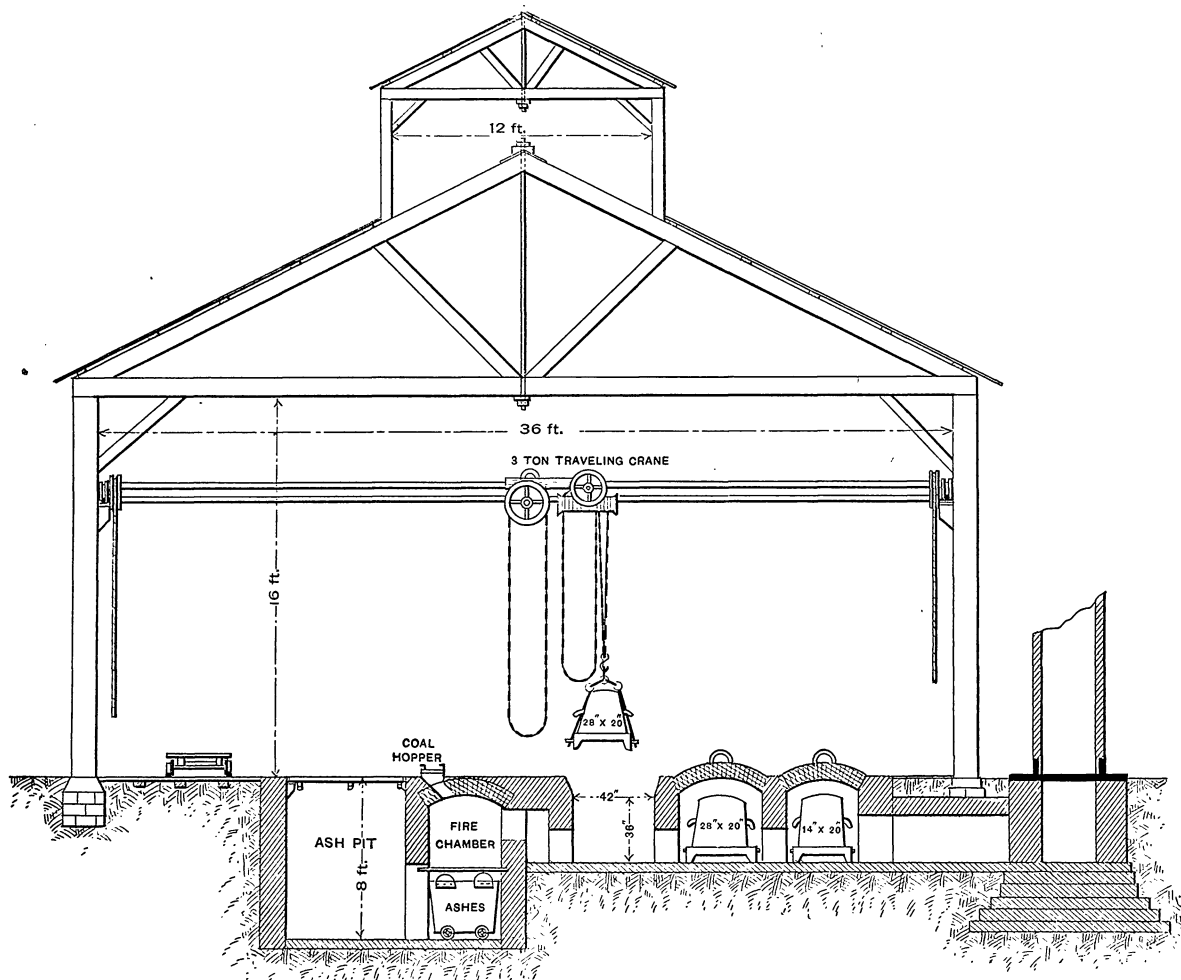


Fig. 1.—Sectional View through Building.

VERTICAL ANNEALING FURNACE PLANT.

come familiar with best methods and have visited Welsh manufacturers to make direct purchases of machinery. In several instances this machinery has been set up in American workshops, but never used, except as a model for American mechanics to improve upon. Now that the industry has been established on a good footing and is in danger of being injured by adverse national legislation, Americans will, according to precedent and in the exercise of their natural instincts, use their own brains and ingenuity to organize systems of working and invent machinery and appliances to reduce the cost of production to a minimum, so as to compete successfully with imported products of cheap labor.

Secrecy regarding processes and machinery is almost a hobby in some

other inventions coming under the latter classification is a new design of annealing furnace, which is constructed upon a plan entirely different from old styles.

Vertical Annealing Furnaces.—Fig. 1 represents a vertical section of the proposed furnace and building suitable for its operation. The intention is to dispense with the old method of charging and drawing annealing boxes horizontally through doors at the side of the furnace and substitute a method of charging the furnace vertically, by mechanical means instead of manual labor. In the former method at least six men are required, and their work is arduous in character. Men need to be expert in handling boxes by means of a lever truck, and must become accustomed to work in close proximity to high temperatures. In the method sug-

operation of the system, it is suggested that the bottom plates be loaded while in position upon the truck shown in the illustration. After the cover is placed over the pile of plates to be annealed the whole arrangement is transported from the shears, or opener's bench, to the annealing house, and is ready to be picked up by the traveling crane and charged into the furnace.

It will be noticed that there is no obstruction above the floor of the annealing house to interfere with the operation of the traveling crane. The furnace is built below ground, and heat which would otherwise be wasted is retained.

Method of Firing.—The fire chamber is novel in construction, being fired from the top, through a cast iron hopper placed in such a position as to conduct the

fuel to the center of the fire. This hopper might also be constructed so as to be placed in the center of the arch and form part of the key. To agitate the fire on the grate bars, without descending the ash pit, a rocking grate is suggested, the lever extending above the floor level. The ashes falling from the grate are caught in the iron wagon shown in the drawing, which is removed by means of the traveling crane to the railroad track, and afterward taken to the dumping ground outside the building. No dust arises and the method is cleanly. The ash pit, which measures only 4 x 5 feet, can easily be kept covered after ashes are removed.

tions, which form the roof of the furnace, is illustrated in detail. The frame is made of cast iron with a hook inserted by which the arch is lifted. Next to the top of the frame a layer of asbestos packing is placed. This acts as a non-conductor, and as the furnace is not at any time heated above 1750° F., workmen will not be troubled with the heat.

In the illustration, Fig. 1, the two chambers nearest the smoke stack are shown covered, with annealing boxes in position. In the chamber nearest to fire the arch is removed, showing annealing box suspended in process of charging. From the description given and illustrations referred to the gen-

between the two fire chambers and the other near the smoke stack.

In the construction of this furnace great attention has been paid to securing a perfect distribution of heat, and the heat conducting passages and ports are so graded that it is possible to concentrate or decrease the heat at any desired point at the will of the person in charge. The two divisions of the furnace may be varied in temperature, as previously stated, or any part of the furnace may be worked hot, cold or at an even temperature. To accomplish this, it is only necessary to place loose fire brick in any of the ports where it is required to cut off heat.

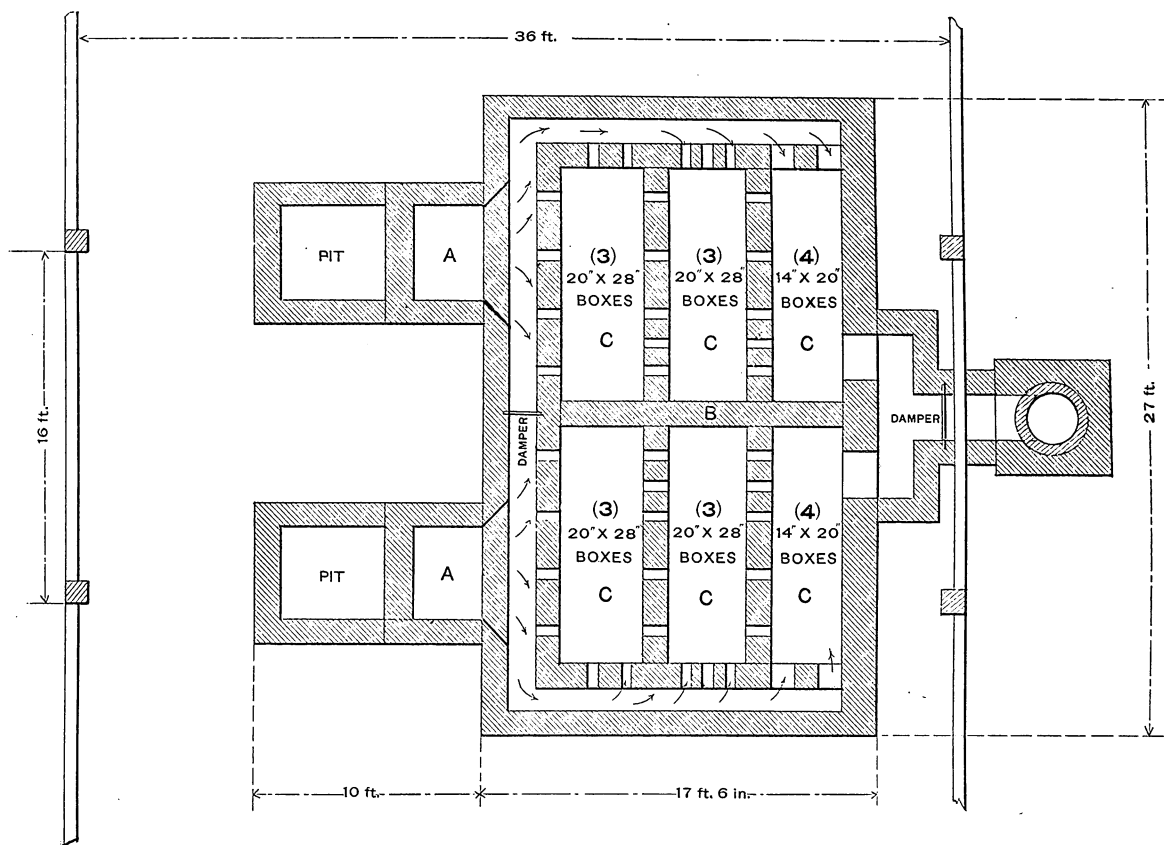


Fig. 4.—General Plan.

VERTICAL ANNEALING FURNACE PLANT.

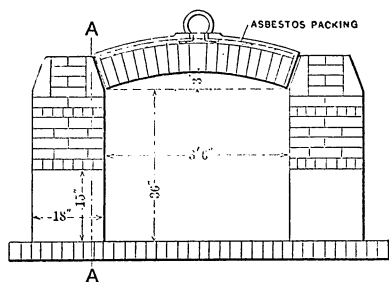


Fig. 2.—Section Showing Asbestos Lined Arch.

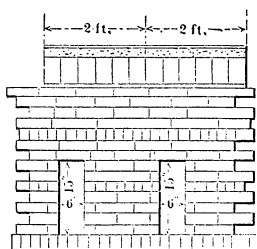


Fig. 3.—Section A A, Fig. 2.

VERTICAL ANNEALING FURNACE FOR SHEETS.

Charging Furnaces.—The manner of charging the furnace is as follows: There are three heating chambers, the size of which must be regulated by the size of bottom plates used. When the boxes are placed in the chambers to be annealed the sections of arches shown in Figs. 2 and 3 are placed in position, a little fire clay dope is used to fill the crevices and the furnace is ready for operation. In Figs. 2 and 3, referred to, the construction of these arch sec-

eral idea of the system will be readily understood.

General Plan.—In order to effect economy in construction for a given capacity, also to economize space and fuel, this furnace is designed double, having two fire chambers, A, Fig. 4, and a dividing wall, B. The two parts of the furnace may be worked together or separately, and two different temperatures maintained. This is effected by proper use of the dampers, one placed

Around three sides of the six heating chambers C there is a passage 12 inches wide along which the flames and heated gases travel, entering the heating chambers through ports shown in the inside walls and indicated by arrow marks, which also describe the course of flames from the chamber. It will be noticed that these ports are graded in size and number, the object of which is to produce a perfect distribution of heat throughout the furnace. For this effect, the ports near to the smoke stack are made either larger or more numerous than near to the fire chambers.

All ports are placed at base of heating chambers, the natural course of flames and heated gases being to follow the arches, thus insuring an equal distribution of heat at base and top of annealing boxes, consequently there is a uniform result in ductility and color of sheets. The flames and heated gases passing from the fire chambers are conducted near the bottom of heating chambers, thus insuring a perfect heat.

The capacity of heating chambers, as shown in plan, is 20 boxes. The large sizes, requiring most heat, are placed in the chambers nearest the fire and the small sizes in the chambers nearest to smoke stack.

Points of Economy.—The first and last object of the inventor of this furnace was to economize labor and fuel without doing so at the expense of quality. In tin plate works of small capacity the effect would not be as noticeable as in a large plant. Yet it would, from the writer's point of view at least, save an amount of money equal to the superintendent's salary, if not considerably more. If only one small furnace of this design is used a system of overhead "telegraphs" is suggested from which pulley blocks, quick acting and steady, are suspended. This would not be as costly as the traveling crane, nor quite as effective. For large plants the traveling crane, which will serve either one or twenty furnaces, should be used. It is in the method of handling black plates from the shears to the annealing house that the first saving is effected. There is no intermediate handling between the opener and the cold rolls, as the plates need not be disturbed until the latter point is reached, and so on through each process to the tinning house similar saving in labor is effected.

In the construction of the furnace but few castings are necessary and very little wrought iron work. The excavation need only be 4 feet deep, except at the ash pit, and the total height of brick work is represented by the same figure. If the ground is packed tightly around the furnace and a good quality of fire brick used, repairs on the furnace will be very slight, and if packed with clay, the whole mass on the outside walls will bake solid. For a similar capacity of annealing boxes the cost of building this furnace is less than the old style.

On the point of cleanliness and keeping plates free from grit the method recommends itself, as the contents of boxes are not exposed in the dust and dirt of an annealing house.

In regard to fuel, the furnace will burn slack coal. The grate area of each fire chamber is 12 square feet, and is sufficient for 20 boxes. All heat is contained in the furnace, regulated at will, and not allowed to escape and heat the air. Hence the economy.

The foregoing description and illustrations of a recently invented furnace for annealing black plates in tin mills have now for the first time been published to the trade and are open for criticism. It is the intention of the writer to treat other matters in tin mill practice from time to time. Meanwhile the columns of *The Iron Age* are open to all who wish to avail themselves of opportunities to criticize existing methods or exchange ideas with other members of the trade, always with a view to placing the new American tin plate industry upon a footing that will enable it to compete successfully with the world.

A Milwaukee dispatch states that there will be no further public test of the To'eman English locomotive. After a series of experimental trips over the St. Paul line between Milwaukee and Chicago, the locomotive is claimed by railroaders to be a failure so far as claims of superiority go.

At Lafayette, Ind., on the 19th inst., the Heavilon shops, built at a cost of \$180,000, were dedicated at Purdue University. The shops were designed for the use of the mechanical and engineering classes. The equipments are complete. Governor Matthews and many prominent citizens of the State were present. A banquet and dance closed the festivities.

The Production of Bessemer Ingots and Rails.

The American Iron and Steel Association publishes the statistics of the production of Bessemer steel ingots and of Bessemer steel rails of all weights and sections in the United States in 1893, except the comparatively small quantity of standard rails and a larger quantity of street rails which were made by manufacturers from purchased blooms. In the statistics of ingots are included the production of the few Clapp-Griffiths and Robert-Bessemer plants, and also the production of steel castings.

The total production of Bessemer steel ingots in 1893 was 3,123,524 gross tons, against 4,168,435 gross tons in 1892, showing a decrease in 1893 of 1,044,911 tons, or over 25 per cent. The production in the last half of 1893 was less than half the production in the first half.

The following table gives the production of Bessemer steel ingots in each half of 1893 and the total production in that year as compared with the total production of 1892 :

States—Ingots.	First half 1893. Gross tons.	Second half 1893. Gross tons.	Total 1893. Gross tons.	Total 1892. Gross tons.
Pennsylvania	1,337,079	696,979	2,034,058	2,397,984
Illinois.....	220,059	94,770	314,829	879,952
Ohio.....	232,980	115,161	348,141	409,855
Other States	301,939	124,557	426,496	480,644
Totals.....	2,092,057	1,031,467	3,123,524	4,168,435

The total production of Bessemer steel rails in 1893, with the exceptions above noted, was 1,036,353 gross tons, against 1,458,732 gross tons in 1892, a decrease of 422,379 tons, or almost 29 per cent.

The following table shows the production of Bessemer steel rails in each half of 1893 and the total production of the year compared with that of 1892, with the exceptions above noted for both years :

States—Rails.	First half 1893. Gross tons.	Second half 1893. Gross tons.	Total 1893. Gross tons.	Total 1892. Gross tons.
Pennsylvania	429,059	210,372	639,431	885,652
Illinois.....	170,263	61,997	232,260	450,542
Other States.....	104,918	59,744	164,662	122,538
Totals.....	704,240	332,113	1,036,353	1,458,732

The production of Bessemer steel rails in 1893 was the smallest since 1885.

As already announced in these columns, the Globe Iron Works Company, Cleveland, Ohio, builders of iron and steel steamships, have decided to build a new freight steamer. The steamer will be 304 feet keel, 324 feet over all, 42 feet beam and 28 feet deep, and will be equipped with gangways and machinery for handling flour and other package freight, so as to be adapted to the Buffalo trade as well as the ore business. With increased depth and corresponding strength she is intended to carry a full load, drawing 18 or 19 feet of water, and may thus be styled the first 20 foot channel boat, as it is pretty generally admitted that few, if any, of the boats now in commission can take full advantage of the increased draft of water to be obtained by this big improvement now being made by the Government. The inspection will be

under the rules of the United States standard register. The engine will be triple expansion, having cylinders 24, 39 and 63 x 42-inch stroke. As soon as plans can be completed the Globe Iron Works Company will build for L. P. & J. A. Smith of Cleveland, Ohio, three steel tug hulls, the largest of which will be 80 feet long, 18 feet wide and 12 feet deep. Machinery and boilers now in the tugs "Ida Sims," "L. P. Smith" and one other of the older wooden tugs of the Smith line will be used in these new steel hulls. The contract for all the plates for the freight steamer referred to above were secured by Pittsburgh, prices made being much the lowest ever known.

Stamping Marine Boiler Plates.

In the Senate last week the following bill was passed and now requires only the signature of the President to become a law. The bill was drawn by a number of Pittsburgh steel manufacturers, and is as follows: The Supervising Inspector-General may detail assistant

inspectors from any local inspection district where assistant inspectors are employed to inspect iron or steel boiler plates at the mills where the same are manufactured, and if the plates are found in accordance with the rules of the supervising inspectors, the assistant inspector shall stamp the same with the initials of his name, followed by the letters and words, 'U. S. Assistant Inspector,' and material so stamped shall be accepted by the local inspectors in

the districts where such material is to be manufactured into marine boilers as being in full compliance with the requirements of the section regarding the inspection of boiler plates; it being further provided that any person who affixes any false, forged, fraudulent, spurious or counterfeit of the stamp herein authorized to be put on by an assistant inspector, shall be deemed guilty of a felony, and shall be fined not less than \$1000 nor more than \$5000, and imprisoned not less than two years nor more than five years.

The Nashville *American* states that the Sloss Iron & Steel Company have leased the Mobile County convicts for a term of three years, at \$8.50 per convict.

Metallurgical works are to be erected by the government of New South Wales in the neighborhood of Sydney.

Lake Ore in 1893.

The statistics of the production of lake ore have been collected and published by the *Iron Trade Review*, the totals of the different ranges being shown in the following table:

	1892.	1893.
Marquette.....	2,666,856	1,829,053
Menominee.....	2,261,499	1,466,197
Gogebic.....	2,973,993	1,329,464
Vermillion.....	1,167,650	820,621
Mesaba.....	4,245	613,620
Totals.....	9,074,243	6,058,955

The production of some of the leading mines during the past two years is presented in the following table:

Marquette Range.		
	1892.	1893.
Buffalo.....	379,719	106,864
Champion.....	109,979	61,648
Cleveland.....	310,907	218,105
Iron Cliffs.....	289,595	130,812
Lake Superior.....	366,715	329,610
Pittsburgh & Lake Ang.	287,517	351,973
Republic.....	167,991	64,195
Volunteer.....	127,130	69,561
Winthrop.....	191,658	180,071

Gogebic Range.		
	1892.	1893.
Ashland.....	231,896	66,067
Aurora.....	319,482	179,028
Brotherton.....	130,333	18,905
Cary.....	106,484	23,578
Colby (and Tilden).....	304,241	194,464
Iron Belt.....	161,635	23,976
Newport.....	165,962	109,718
Norrie.....	985,216	472,062
Pabst.....	113,245	104,510
Palms.....	102,382	2,658

Mesaba Range.		
	1892.	1893.
Biwabik.....	151,500	
Canton.....	24,416	
Cincinnati.....	26,372	
Commodore.....	65,137	
Duluth.....	37,626	
Franklin.....	46,617	
Hale.....	3,616	
Lowmore.....	1,645	
Mesabi Mountain.....	123,015	
Minnewas.....	13,858	
Mountain Iron.....	4,245	119,818

Menominee Range.		
	1892.	1893.
Aragon.....	167,948	127,901
Chapin.....	660,052	489,134
Commonwealth.....	249,113	151,291
Dunn.....	135,666	58,590
Vulcan.....	179,904	290,450
Penn Iron Mining Co.....	125,773	
Pewabic.....	115,273	165,745

Vermillion Range.		
	1892.	1893.
Chandler.....	651,655	435,930
Minnesota Iron Co.....	498,353	370,303

The figures by ports are given below. They show that Marquette, which is the only port shipping more in 1893 than in 1892, has returned to third place, which it lost to Two Harbors in 1892:

Escanaba.....	2,048,981
Ashland.....	1,117,524
Marquette.....	1,086,934
Two Harbors.....	903,329
Duluth.....	440,292
Gladstone.....	203,585
Superior.....	80,273
All rail.....	178,037

Total..... 6,058,955

The falling off from 528,930 tons all rail shipments in 1892, to 178,037 tons last year, indicates the sharp curtailment of operations by upper lake charcoal furnaces in 1893.

At Chicago, on the 13th inst., Judge Jenkins in the United States Supreme Court entered a decree affirming the sale of the plant of the United States Rolling Stock Company to Thomas F. B. Parker for \$350,000. The decree provides that \$35,000 is to be held by the court until the claims of Carnegie, Phipps & Co., Hibbard, Spencer, Bartlett & Co. and A. L. Adams are decided.

The sum of \$16,799 is to be applied at once to the payment of part of the indebtedness of the company under the first mortgage bonds. The bondholders are to receive 5 per cent *pro rata*, without discrimination between principal and interest. Judge Jenkins also denied the petition of Carnegie, Phipps & Co. in the United States Rolling Stock Company case asking for the discharge of the receiver.

The Inland Steel Company.

The new plant of the Inland Steel Company, at Chicago Heights, Ill., is now in active operation, having been started last week. This corporation is the successor of the Chicago Steel Company, who purchased the works of the long established Chicago Steel Works and undertook to remove them to Chicago Heights. The task was only partly accomplished when the company failed. The Inland Steel Company then took hold and finished the plant according to the original arrangement, but in some respects made improvements on the plan. They have a well arranged and well equipped works, adapted specially to meet the requirements of plow makers and other manufacturers of agricultural implements. At present some 5 acres are occupied, but 5 more will shortly be added to the tract to supply necessary room. Railroad facilities are excellent, as the main line of the Chicago & Eastern Illinois passes through Chicago Heights, as well as the Joliet branch of the Michigan Central and the important belt line of the Elgin, Joliet & Eastern. The company's own tracks run into their works and they also own a number of cars for hauling special freight.

The works comprise a number of detached buildings grouped about the central mill building. This is the most important structure, and is about 300 feet long and 75 feet wide, with an ell at the shipping end. The heating furnaces are at the other end. These are two in number, and are placed on opposite sides of the building, leaving the intervening space open for the handling of materials. These heating furnaces are oil fired, and are of a new design, the invention of John N. Lauth of St. Louis. Each has four charging doors, and the capacity of each is 10,000 pounds at a heat. Beyond the heating furnaces, and extending transversely across the building, is a 14-inch three-high train of rolls with five stands. These rolls are the special design of John W. Thomas, the superintendent of the old Chicago Steel Works and in charge of the present plant. They are adapted to the breaking down of old steel rails or steel billets and finishing them into any required shape. When old steel rails are used, they are cut into lengths of 4 to 6 feet, according to the size of the section. They can then be rolled direct on these rolls into plow beam billets, but for flats and other shapes they are run through slitting rolls on the same train. A 500 horse-power double engine, built by C. H. Brown & Co. of Fitchburg, Mass., supplies the motive power for these rolls, on which three shapes can be worked at the same time. The arrangement of these rolls has met with much commendation from managers of other mills who have visited the works. They can easily roll 50 tons per turn. Within a convenient distance from the rolls are hot saws for sawing the rolled product to exact length. Further down the building are cooling beds, straight-

ening machines and shears. At this point a shipping platform has been placed alongside the mill building for loading merchantable product.

In an ell, previously alluded to, which is at this end of the mill, are located several trip hammers for forging harrow teeth, a smith shop and a machine shop. The last named department is equipped with all the necessary lathes, drills and other tools for doing the repair work required, turning rolls, &c. A narrow gauge railroad runs through this part of the works and also from the roll turning lathes to a roll storage house, situated directly opposite the roll train, and in which are stored the very large variety of rolls required to turn out the numerous shapes called for by implement manufacturers.

On the opposite side of the main building is a separate structure used as a shop for making plow beams, &c. This building is 100 x 40 feet, and contains four heating furnaces, a train of special rolls for tapering plow beams, bending machinery, four drop hammers for forging small parts of implements, punches, shears, &c. The products turned out by this department are of a varied character, but are of what has now become a standard type among the manufacturers of agricultural implements. In this line the company enjoy the full benefit of the long experience of the former proprietors of the works, who may be said to have grown up with the latest development of the agricultural implement trade, in which metal has been largely substituted for wood, and every effort has been made to secure the extreme of lightness without the sacrifice of strength or durability.

The company have introduced a good system of fire protection. An elevated tank is used for the storage and distribution of the water supply. Pipes are carried to all parts of the buildings, and at convenient distances hose couplings are put in, with a line of hose in place for use. Greater pressure can be applied by a pump in the boiler room if needed. The boiler room contains three boilers of a capacity to furnish all the steam needed to operate the rolling mill engines, an engine for the machine shop, &c., and an electric light engine.

The company start off with excellent prospects. They have already taken orders which will keep them comfortably busy for 60 days or more, and business continues to be received from day to day. Orders are in hand from Canada, and from remote as well as nearby sections of the United States. The products now being turned out are steel bars, angles, small tees and channels, as well as the numerous agricultural shapes referred to previously. J. E. Porter of Ottawa, Ill., is president; G. H. Jones, late with S. D. Kimbark, is vice-president; W. M. Adams is secretary, and P. D. Block is treasurer.

The employees of the H. O. Nelson Mfg. Company of St. Louis are in good spirits. This concern is conducted on the profit sharing plan, and for the last ten years the workmen have received annual dividends. In August last, when the financial stringency was making itself manifest, they accepted without demur a cut of 25 per cent. in wages. On the 17th inst., under resolution of the Board of Directors, a dividend of 7 per cent. was distributed, and in addition the loss by the cut in wages was returned in full in cash to each employee. This satisfactory condition of affairs was brought about by a revival in the business of the corporation.

Three of the castings of each belt are modified for the attachment of the brackets supporting the tower stair landings.

The 184 wrought iron tension rods of the structure must be clean, sound and straight forgings, provided with clean and smooth right and left hand V screw threads, cut in accordance with proportions given by the Franklin Institute, upon the stubs after the latter have been reduced to the diameters of the rods. The stub which has the right-hand thread must always be welded to the shorter end of the rod. The turn-buckles are to be clean and smooth forgings; they must be of the same style throughout the structure and must be equal in shape, strength and finish to those manufactured by the Cleveland City Forge & Iron Company, Cleveland, Ohio.

The cast iron stair cylinder is composed of 26 sections of plates besides the cylinder belt castings already mentioned.

The section which rests upon the belt castings at the foot of the first series is composed of eight castings, which are provided with ribs, beads and flanges, by which they are secured to each other, to the belt course, and cylinder plates. The castings are planed at faces of contact with each other, with the cylinder belt, and cylinder plate and floor castings, and are secured to each

San Francisco News.

The imports of tin plate for the year were among the largest in the history of the trade—335,673 boxes—while the consumption was comparatively small and the stock carried over one of the largest on record. The disturbed financial condition was the cause of a much lessened pack of canned goods, while the Alaska cannery this time carried out their resolution to restrict their pack of salmon, which, though a good thing for them, was bad for the importers of tin plate and the manufacturers of cans. Had the banks not been so particular in the matter of loans there would have been a very different

weak. The consumption in 1894 will probably not much exceed that of 1893, inasmuch as the low prices for canned fruit will not give much encouragement to packing any very great quantity of fruit, and as the salmon pack will doubtless be restricted, as it was in 1893.

We have not as yet full details of the movement of nails by rail for the past year, but it was comparatively light. The imports by sea were 78,276 kegs and 507 cases. The supplies for 1893 were not as large as for some other years, inasmuch as the factory closed in May for cleaning up, and also because business was dull, and in August it was totally destroyed by fire. With the stock on hand at the close of 1892 the supply exceeded 300,000 kegs, but the consumption fell off on account of the character of the year, and there is therefore a fair though not large stock on hand at present, which is being steadily replenished by rail and clipper. The market opened at \$2.20 per keg, and closed at \$1.65 as the wholesale rate. Jobbing at \$1.75 was the basic price for iron nails in carload lots. Such prices were never before heard of in this market, and were the direct result of the low rates of freight round the Horn.

There was some fear recently that this competition had come to an inglorious end, and that we had seen the last of the North American Navigation

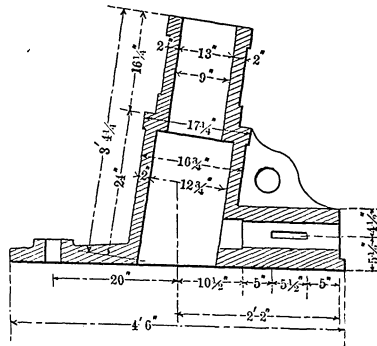


Fig. 6.—Section at Foot of Column.

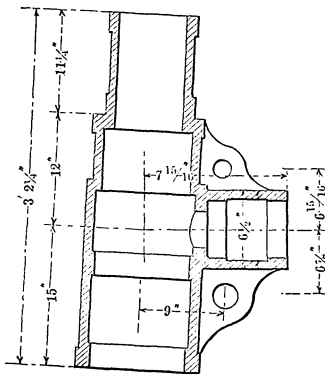


Fig. 3.—Section of Column Joint in Plane through Center of Tower.

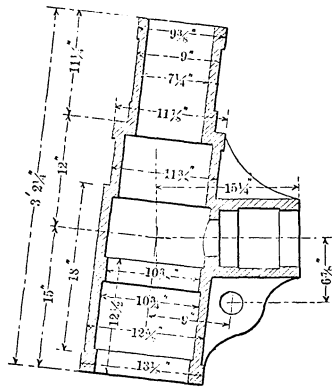


Fig. 4.—Section of Column Joint Parallel with Side.

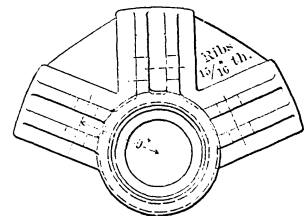


Fig. 5.—Plan of Column Joint.

AN AMERICAN LIGHTHOUSE.

other by 40 $\frac{7}{8}$ inch and to the cylinder belt by 32 1-inch rough bolts passing through drilled holes. Three of the above castings are to be modified for the attachment of the beam and channels supporting the platform in front of the vestibule of the tower.

The different flights of cylinder stairs leading from the vestibule to the service room floor are composed of carriers and treads, all of cast iron. The interior of the cylinder is lined with sheet steel $\frac{1}{8}$ -inch thick. The specifications cover, with extreme minuteness both as to drawings and description, all the details of the structures, and demand material and workmanship of the highest grade.

President Cleveland on Saturday vetoed the New York and New Jersey Bridge bill because the promoters of the enterprise, after securing a charter from the State of New York on the express stipulation that the bridge should have a single span from shore to shore, secured from Congress in this bill the privilege of placing a pier in the river 2000 feet from the New York shore.

story to tell, and a large pack of fruits would have been the result, with a corresponding benefit to the tin plate trade. The lessened consumption and the probability of a reduction in the tariff caused a considerable reduction in the price.

The stock on hand at the close of the year is estimated at 160,000 boxes. There have been no imports of pig tin since the close of last July. This is because of the duty which has taken effect, and because importers and the trade in general took good care to supply themselves beforehand. But importation was very active during the first half of the year. In fact, the totals for the seven months during which importation was carried on were larger than for the whole of any year, except, indeed, in 1889 and 1891. The demand was not at all equal to that of 1892, and the year closes with quite large stocks on hand. The total free imports were 1,883,337 pounds, including 11,172 pounds banca. The value was \$378,362. This is, as nearly as possible, 20 cents a pound. The market here has fluctuated between 22 $\frac{1}{2}$ cents and 21 $\frac{1}{2}$ cents and closes very dull and

Company, which was the immediate instrument of it. But those in charge of raising the necessary sum—\$100,000—at last, after a hard battle, succeeded in doing so and the steamers still keep running. But it was a close shave, and few there are outside of those who have labored hard night and day in the interest of San Francisco and her commerce who are aware of what an undertaking it was to raise the needed amount of money. And as this was the case after a long and successful competition which saved \$8,000,000 in freights to the consumers of the State comment is needless and perhaps would be useless. The dullness of the year may be alleged in excuse, and no doubt it has hit many people very hard. But, after all, it will strike the ordinary observer that something is lacking in the business fiber of the average San Franciscan. There is a section of our people—the manufacturers—who have not reaped any benefit but rather an injury from the low freights, and they could not be blamed for not being very enthusiastic in the cause. But further comment is needless.

Aluminum: Its Properties and Its Uses.

BY A. E. HUNT, PITTSBURGH, PA.

(Continued from page 109, January 18)

5. The coefficient of linear expansion is very near to that of the metal tire, and as tested on $\frac{3}{8}$ -inch round aluminum rods gave results of 0.00002295 per degree centigrade between the freezing and boiling points of water; that of iron being similarly 0.0000122; tin, 0.0000217; copper, 0.00001718.

The mean specific heat of aluminum is, with the exception of magnesium and the alkali metals, the highest of any of the metals. From zero to the melting point it is 0.2185; water being taken as 1 and the latent heat of fusion as 28.5 heat units.

The coefficient of thermal conductivity of unannealed aluminum is 37.96; of annealed aluminum, 38.87.

As a conductor of heat aluminum stands fourth, being exceeded only by silver, copper and gold as follows:

Relative Conductivity of Aluminum, Silver Being Taken as 100.

Silver.....	100.0	Tin.....	14.5
Copper.....	73.6	Iron.....	11.9
Gold.....	53.2	Steel.....	11.6
Aluminum, annealed.....	38.87	Platinum.....	8.8
Aluminum, unannealed.....	37.96	Bismuth.....	1.8

Due to its high specific heat and its high heat conductivity, as well as its non-tarnishing qualities and its lightness, aluminum is particularly adaptable for cooking utensils, and a considerable use for the metal in this direction has begun to be established and bids fair to grow rapidly within the next few years. The prospects are that a very large tonnage of aluminum will be required for cooking utensils soon, when the people become better acquainted with the advantages of its use, and the demand will grow large enough to warrant the increased facilities and output in factories already established to manufacture cooking utensils and the building of others, so that the most approved machinery may be used and all forms of articles made, and made also at the cheaper rates occasioned by large production. There seems to be no reason why aluminum cooking utensils shall not be sold in the near future at a price certainly as low as like articles made of copper. Aluminum is far superior for this purpose to copper, which requires to be tin lined for most culinary uses; one of the chief advantages being that, due to its high heat conductivity, local burning of the food products contained in the vessel will not occur. For covered dishes to retain the heat within the contents of the dish aluminum is particularly well adapted.

6. The electrical conductivity of pure aluminum is 54.20, pure silver being taken as 100, aluminum in this being only surpassed in electrical conductivity by pure copper, silver and gold. Pure gold is 78; zinc stands next below aluminum in the table of conductivity of metals, at 29.90; iron being only 16, platinum only 10.60 in the same scale.

Pure aluminum has no polarity and the metal of the market is absolutely non-magnetic. These properties have, within the last year, led to its considerable use in electrical appliances, and there seems ground for believing that the demand for its use for electrical as well as astronomical and other physical instruments will be a growing one.

7. *Strength.*—Under tension, aluminum is about as strong, section for

section, as cast iron, but when the fact is taken into consideration that pig iron or a similar part of wrought iron or steel would weigh, section for section, three times as much as aluminum, the relative tensile strength of the metal assumes a further importance.

The tensile strength is further increased by its being cold rolled or cold forged; and there are alloys which will not increase the specific gravity over, say 3 or 3.25, which add very considerably to the tensile strength of the metal. For sections of structural work where lightness is of importance, as in the framework and plating of torpedoes, the metal has begun to find useful application. The Pittsburgh Reduction Company are now furnishing angles, plates, channels and other sections used in structural work of aluminum, in commercial quantities, and the use of the metal in heavier sections is one of the steps forward in the development of aluminum which has lately gone into effect.

The following is a table giving the average results of many tests of commercial aluminum:

Strength of Commercial Aluminum.

Elastic limit per square inch in tension.	castings..... 6,500 sheet..... 12,500 wire..... 16,000-30,000 bars..... 14,000
Ultimate strength per square inch in tension	castings..... 15,000 sheet..... 24,000 wire..... 30,000-65,000 bars..... 28,000
Percentage of reduction of area in tension.	castings 15 sheet..... 35 wire..... 60 bars..... 40
Elastic limit per square inch under compression in cylinders, with length twice the diameter.....	3,500
Ultimate strength per square inch under compression in cylinders, with length twice the diameter.....	12,000
The modulus of elasticity of cast aluminum is about.....	11,000,000

Aluminum in castings can readily be strained to the unit stress of 1500 pounds per square inch in compression, and to 5000 pounds per square inch in tension. It is rather an open metal in its texture, and for cylinders, to stand pressure, an increase in thickness over the ordinary formulae should be given to allow for its porosity.

Taking the tensile strength of aluminum in relation to its weight, it is as strong as steel of 80,000 pounds per square inch. Comparative results in this way are tabulated below, as taken from Richard's work on aluminum:

The Strength of Aluminum Compared with Other Metals.

Metals.	Weight of 1 cubic foot, in pounds.	Tensile strength per square inch.	Length of a bar able to support its own weight, in feet.
Cast iron.....	444	16,500	5.351
Ordinary bronze.....	525	36,000	9.893
Wrought iron.....	480	50,000	15,000
Hard structural steel.....	490	78,000	23,040
Aluminum.....	168	26,800	23,040

Under torsional stress in Thurston's torsional machine the metal has much lower modulus of rigidity than iron or steel, its maximum shearing stress in castings being about 12,000, and in forgings about 16,000, being about that of pure copper. The angle of torsion is about equal to that of the softest steel.

8. *Alloys of Aluminum.*—Aluminum and copper form two series of valuable alloys—aluminum bronze, containing from 5 to 11½ per cent. of aluminum,

and copper-hardened aluminum, containing from 2 to 15 per cent. of copper.

The 5 to 11½ per cent. of aluminum bronzes are very dense, fine grained and strong alloys, having good ductility as compared with the tensile strength. The 10 per cent. bronze, in forged bars, will give 100,000 pounds tensile strength per square inch, with 60,000 pounds elastic limit per square inch and 10 per cent. elongation in 8 inches.

The 10 to 11½ per cent. aluminum bronzes have a specific gravity of about 7.50, and are of a light yellow color. The 5 to 7½ per cent. have a specific gravity of 8 to 8.30. They are of a yellow color and give a tensile strength of 70,000 to 80,000 pounds per square inch, with an elastic limit of 40,000 pounds per square inch, and an elongation of 30 per cent. in 8 inches.

The melting point of 10 per cent. aluminum bronze is about 1700° F. A peculiarity of this alloy is that it is malleable at a red heat, making it more convenient to fashion it for various purposes than the other bronzes which are less easily malleable, none of the strong bronzes being malleable at a high heat.

Aluminum bronze is especially capable of withstanding acid solutions which attack most metals. Coal screens and other articles subjected to acid mine waters have been made in considerable quantities of aluminum bronze during the past two years, and are giving good satisfaction. The metal is also being used in parts of acid making machinery with success.

A small percentage of aluminum added to Babbitt metal gives very superior results over ordinary Babbitt as a bearing metal. A. W. Cadman of Pittsburgh has patented the use of one-half of 1 per cent. of aluminum with the ordinary tin-antimony-copper Babbitt metal. Considerable amounts of this Babbitt metal are being used in the Pittsburgh district, in the hardest classes of bearings, giving very satisfactory results. A peculiarity that the aluminum gives to the alloy is good malleability, allowing it to be hammered or rolled readily into bars and shapes. Various concerns are now placing aluminum bearing metals upon the market.

Aluminum is being used regularly by many of the largest steel companies in the country. It is added to the steel in proportions of from $\frac{1}{4}$ pound to several pounds of aluminum to the ton of steel, the purpose of the addition being largely to prevent the retention of the occluded gases in the steel and give thereby the production of solid ingots. Aluminum also seems to give extra fluidity to the metal, which allows the making of clearer and sounder steel castings, so that in the steel casting trade it is now almost universally used. In fact, it is claimed by leading metallurgists who have watched the operation of the manufacture of steel castings that the largest share of the remarkable development of the past few years in the quality of steel castings has been due to the regular use of aluminum. In the manufacture of open-hearth steel, aluminum as used is added in small pieces of from $\frac{1}{4}$ to $\frac{1}{2}$ pound weight to the ladle during the tapping operation. The aluminum melts instantaneously, as the temperature of the molten steel is above the melting point of aluminum, and it seems to diffuse with remarkable rapidity throughout the entire contents of the ladle. The diffusion seems to be complete, and there appears to be no need for special precaution for agitation of the metal for this purpose, as no indications of a

want of homogeneity of the metal have been found.

A valuable alloy of aluminum and ferromanganese has lately been covered by letters patent, it having been found that the addition of a small percentage of aluminum to ferromanganese renders the combined carbon in the manganese alloy graphitic and throws the carbon thus separated in a graphitic state out in the molten mass in the form of a "kish." This allows the production by this means of a ferromanganese relatively very low in combined carbon—a state of affairs which is particularly useful with the ferromanganese used in the manufacture of low carbon steel.

Aluminum added to cast iron produces an effect similar to that produced by silicon—that is, it tends to convert the combined carbon in the iron into the graphitic state, thus causing the iron to be softer, freer from shrinkage and lessens the tendency of the iron to "chill." A small percentage of aluminum added to white iron will thus change the character of the metal. While aluminum does not always seem to give marked advantages when used with good gray iron, its use with inferior grades of pig iron in foundry work is marked and very satisfactory.

R. A. Hadfield, in his paper read before the October, 1890, meeting of the Iron and Steel Institute of Great Britain, in New York, gives the following table of results of the addition of aluminum and silicon to manganiferous white iron, showing the results of the aluminum and silicon to have been very closely the same:

Effect of Adding Aluminum to White Iron.

12 per cent. spiegel iron.	Combined carbon.	Graphitic carbon.	Silicon.	Manganese.	Aluminum.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Before addition of aluminum.....	4.80	None.		11.65	
After addition of aluminum.....	0.93	3.45	1.30	11.75	3.19
Before addition of silicon.....	4.10	None.		11.00	
After addition of silicon.....	0.43	3.40	3.73	9.50	

The fracture was changed after addition of both the aluminum and silicon from the usual pronounced spiegel appearance to that of No. 3 iron.

With the exception of lead and mercury, aluminum unites, forming alloys with all metals. Antimony alloys with aluminum with great facility. A small percentage of silver in aluminum whitens the color and hardens the metal, giving it added strength. This alloy is especially adaptable for fine instruments and apparatus where the work is of more consequence than the increased cost by the addition of the silver. The following alloys have been found recently to be useful in the arts:

New Aluminum Alloys.—Nickel aluminum, composed of 20 parts nickel and 8 parts aluminum.

Rosine, composed of 40 parts nickel, 10 parts silver, 30 parts aluminum, and 20 parts tin, for jewelers' work.

A bronze composed of 60 parts (or 40 parts) cobalt, 10 parts aluminum, 40 parts (or 30 parts) copper.

Metalline, composed of 35 parts cobalt, 25 parts aluminum, 10 parts iron and 30 parts copper.

In the Paris exhibition there was considerable prominence given to the exhibit of aluminum-Bourbounz metal, an alloy of aluminum with tin. The specific gravity of the alloy ran from 2.9 to 2.96. The special advantage of this metal was its capacity to cast in very solid shapes, the metal having very little shrinkage in castings. The analy-

sis of this aluminum-Bourbounz metal was as follows:

Composition of Aluminum-Bourbounz.	
	Per cent.
Aluminum	85.74
Tin	12.94
Silicon	1.32
Iron	None

Professor Roberts-Austin has discovered also a beautiful alloy composed of 22 parts aluminum and 78 parts gold, which is a rich purple color of ruby tint.

An addition of 5 to 15 per cent. of aluminum to type metal composed of 25 per cent. antimony and 75 per cent. lead, makes a metal giving sharper castings and much more durable type. To brass the addition of aluminum gives superior strength and better anti-corrosive qualities. The addition of small quantities of aluminum to zinc has rendered the zinc much more efficient in galvanizing, giving a thinner and more tenacious and finer looking casting.

Alloys of from 10 to 15 and even up to 25 per cent. of zinc to aluminum have been found to be much harder and stronger than pure aluminum in castings. These alloys, having in addition to the zinc a small percentage of tin added, have been growing in use of late for many purposes, a notable instance being for the parts of bicycles.

Processes for plating aluminum with other metals have been successfully produced within the past year, and metal plated with gold, silver, nickel, and even bronze were shown in the exhibit of Mr. Wetz, in the Department

tin solder. A German solder which has been said to give good results, is as follows: 80 parts tin, 20 parts zinc, using a flux composed of 80 parts stearic acid, 10 parts chloride of zinc, 10 parts of chloride of tin.

Pure tin has been used as a solder. It fuses at 250° C.

Also the following alloys have been used with more or less success:

Alloys used for Soldering Aluminum.

Alloys.	Grains.	Fusing point.
		Degrees centigrade.
Tin	1,000	280-300
Lead	50	
Tin	1,000	280-300
Zinc	40	
Tin	1,000	350-400
Copper	10-15	
Tin	1,000	350-400
Ni kel	10-15	
Tin	900	
Copper	100	
Bismuth	2-3	

The last solder in the above table is especially suitable for use with aluminum bronze.

The use of chloride of silver as a flux in soldering has been patented and has given some success in soldering aluminum, using ordinary soft solder. There are now pending in the Patent Office several solders and methods of soldering, which bid fair to further aid in this matter, but which it is manifestly improper to describe here. A pure nickel soldering bit should be used in soldering the metal, as it does not discolor the aluminum as copper soldering bits do.

A novel use of aluminum has been in the production of aluminum slate pencils, which have had a large sale for the past few months. The soft aluminum, in the form of wire with sharpened point, is found to work as satisfactorily upon slate as ordinary forms of slate pencils do, being much more durable and less liable to break and wear.

Aluminum has been used for sounding boards and stringed musical instruments, the qualities claimed by the patentee, Mr. Springer of Cincinnati, being the production of a more sonorous and pleasing tone than the wooden ones in common use. Aluminum differs from the other metals in the character of its "metallic" sound. There is an elasticity capable of sympathetic vibrations uniformly throughout a wide range of tone pitch with the metal, besides the other qualities of incombustibility, impermeability to moisture and comparative freedom from liability to injury, such as splitting, which renders it far superior to wood for sounding boards.

Aluminum has been very successfully used for horseshoes, and has been used upon the feet of several of the fastest race horses within the past year. A detachment of horses of Finland dragoons of the Russian cavalry service have been shod alternately with iron and aluminum shoes, on both fore and hind feet, and in each instance the wear after hard service for a considerable period has been less upon the aluminum than the iron shoes, and the claim was made that they preserved the feet of the horses better than the iron shoes.

Aluminum has been used lately for racing shells, and the famous racing shell builder, Mr. Galanaugh, built a four-oared shell for the Fairmount Rowing Club of Philadelphia, in which their champion crew lowered the record 9 seconds this season over the Schuykill

River course. The aluminum for this boat was in one sheet of about $\frac{1}{8}$ inch thickness, and the weight about 50 pounds—considerably less than that of a cedar boat, the entire boat, with the exception of the outriggers, being of aluminum.

Aluminum has been used in the metallurgy of silver very satisfactorily of late, and the Roessler-Edelman process of desilverizing lead with an alloy of aluminum and zinc bids fair to be of large commercial use.

New Steel Steamship at Chicago.

The plant of the Chicago Shipbuilding Company on the Calumet River, at Chicago, has a good prospect for more work. The works were closed down after the completion of the steamship "Manitou" for the Lake Superior Line last June. On account of the disastrous season in lake business few new boats are being built at any of the lake shipyards, and the company were unable to get satisfactory orders.

After considerable negotiation a syndicate of Chicago capitalists has been organized, and recently it closed a contract with the shipbuilding company for a 5000-ton steel steamer to be completed next spring. Work will be commenced at once on the new boat and will be pushed vigorously, giving employment to several hundred men for several months. The steamer will be 328 feet keel, 44 feet beam, and 28 feet depth of hold. These dimensions will make it one of the largest, if not the largest, carriers on the lakes. While half a dozen boats now have greater length, they have not the great depth of the new boat, which is being built for the future when the 20-foot channel between Chicago, Duluth and Buffalo shall be an accomplished fact. On its full draft of water the steamer will carry over 5000 tons. The engines will be constructed by the Cleveland Shipbuilding Company, and will be triple expansion, the cylinders being 23, 38 and 62 inches in diameter by 40 inch stroke. The boat will have two boilers, 14 x 13 feet. It will be built under the United States standard rules and inspection, and will have all modern improvements in the way of electric lights, search lights, steam whistles, etc. It is designed for both bulk and package freight, and will have ten gangways for handling the latter.

In all there are not over a half dozen boats now under construction in lake shipyards. The competition between the companies for the few contracts offered has been extremely sharp, and the Chicago concern have been fortunate in securing more than their share of the season's building.

The greatest novelty in iron alloys is that with molybdenum, which metal, according to Sterberg and Deutsch, may be readily obtained by reducing calcium molybdate with carbon. The metal, when cleared from slag by hydrochloric acid, contains from 96 to 98 per cent. of molybdenum, and can be supplied at about \$1.25 per pound. The effect on steel is similar to that of tungsten; but as both the atomic weight and specific gravity are only about one half of those of the latter (W 184, sp. gr. 19; Mo. 96, sp. gr. 9), a very much smaller addition is required to obtain the special self-hardening property. Steel containing 2 per cent. of molybdenum is said to be silvery white, with a fine silky fracture, and extremely hard.

The Production of Pig Iron.

The American Iron and Steel Association has received from the manufacturers complete returns of the production of pig iron in the United States in 1893, and also complete returns of the stocks of unsold pig iron in the hands of makers or their agents at the close of the year.

The total production of pig iron in 1893 was 7,124,502 gross tons, against 9,157,000 tons in 1892, 8,279,870 tons in 1891, and 9,202,703 tons in 1890. The production in 1893 was 2,032,498 tons, or over 22 per cent., less than in 1892. This great decline in production may fairly be said to have occurred wholly in the second half of 1893, as the production of the first half was larger than that of the second half of 1892, and almost as large as that of the first half of 1892. In the following table we give the production of pig iron by half years during the last four years:

Periods.	1890.	1891.	1892.	1893.
First half...	4,560,513	3,368,107	4,769,683	4,562,918
Second half	4,642,190	4,911,763	4,387,317	2,561,584
Totals....	9,202,703	8,279,870	9,157,000	7,124,502

As compared with the first half of 1893 the production in the second half of that year shows a decrease of nearly 44 per cent., the largest semi-annual decrease in production of which there is any statistical record.

As will be noted by reference to the table printed below, all the States show a reduced production of pig iron in the second half of 1893 as compared with the first half, with the single exception of Georgia, which is not a large producer of pig iron at any time. Comparing the total production in 1893, however, with the total production in 1892, we find that three States, Georgia, Maryland and Colorado, made more pig iron in 1893 than in 1892. All the other States made less.

Production of Pig Iron in 1892 and 1893.

States.	Gross tons of 2,240 pounds.	
	1892.	1893.
Massachusetts.....	7,946	7,853
Connecticut.....	17,107	12,478
New York.....	310,395	191,115
New Jersey.....	87,975	74,305
Pennsylvania.....	4,193,805	3,643,022
Maryland.....	99,131	151,773
Virginia.....	342,847	302,856
North Carolina.....	2,908	2,843
Georgia.....	9,950	39,675
Alabama.....	915,296	726,888
Texas.....	8,613	6,257
West Virginia.....	154,793	81,591
Kentucky.....	56,548	47,501
Tennessee.....	300,081	207,915
Ohio.....	1,221,913	875,265
Indiana.....	7,700	5,567
Illinois.....	949,450	405,261
Michigan.....	184,421	117,538
Wisconsin.....	174,961	131,772
Missouri.....	57,020	32,361
Minnesota.....	14,071	10,373
Colorado.....	32,441	45,555
Oregon.....	7,828	4,739
Totals.....	9,157,000	7,124,502

The production according to fuel used was as follows:

Production According to Fuel Used.

Fuel used.	Production. Gross tons of 2,240 pounds. (Includes spiegel-eisen.)	
	First half of 1893.	Second half of 1893.
Anthracite.....	855,234	492,295
Charcoal.....	287,240	149,549
Bituminous.....	3,470,444	1,919,740
Totals.....	4,562,918	2,561,584

The production of some of the leading districts was as follows:

Production in Certain Districts.

	First half 1893.	Second half 1893.
Pennsylvania:		
Lehigh Valley.....	243,305	137,510
Schuylkill Valley.....	227,209	188,383
Upper Susquehanna Valley.....	74,579	29,956
Lower Susquehanna Valley.....	242,411	100,860
Juniata Valley.....	64,348	29,858
Shenango Valley.....	276,674	126,028
Allegheny County.....	9,5718	741,489
Miscellaneous Bituminous.....	139,870	60,276
Charcoal.....	1,848	2,750
Ohio:		
Hanging Rock Bituminous.....	43,631	25,844
Mahoning Valley.....	247,340	116,248
Hocking Valley.....	214,8	12,436
Miscellaneous Bituminous.....	274,157	112,834
Hanging Rock charcoal.....	5,037	13,260

The production of Bessemer pig is recorded in the following table:

Production of Bessemer Pig Iron.

	First half 1893.	Second half 1893.
New York.....	63,295	7,918
New Jersey.....	1,822	20
Pennsylvania.....	1,489,154	894,076
Maryland.....	87,329	59,897
North Carolina.....	2,445	398
West Virginia.....	66,398	15,193
Kentucky.....	15,646	
Ohio.....	282,106	139,091
Illinois.....	295,383	63,209
Missouri.....	22,329	10,031
Wisconsin.....	2,258	437
Minnesota.....	10,373	
Colorado.....	36,352	3,498
Totals.....	2,374,890	1,193,708

In some of the leading districts the production of Bessemer pig was as follows:

Production of Bessemer Pig Iron in Pennsylvania and Ohio Districts.

	First half 1893.	Second half 1893.
Pennsylvania:		
Lehigh Valley.....	94,785	27,941
Schuylkill Valley.....	53,507	50,697
Upper Susquehanna Valley.....	64,033	25,136
Lower Susquehanna Valley.....	215,699	94,728
Juniata Valley.....		
Shenango Valley.....	116,475	88,021
Allegheny County.....	792,201	578,751
Miscellaneous bituminous.....	122,454	35,799
Ohio:		
Mahoning Valley and Hanging Rock bituminous.....	80,576	40,595
Hocking Valley.....	13,804	12,070
Miscellaneous bituminous.....	187,727	86,426

The quantity of spiegel-eisen and ferro-manganese produced in 1893 was 81,118 gross tons, against 179,131 tons in 1892.

The stocks of pig iron which were unsold in the hands of manufacturers

or their agents on December 31, 1893, and which were not intended for their own consumption, aggregated 662,068 gross tons, against 506,116 gross tons at the close of 1892, 596,333 tons at the close of 1891, and 608,921 tons at the close of 1890. On June 30, 1893, the stocks of unsold pig iron amounted to 549,141 gross tons. There was, therefore, an increase in unsold stocks in the last half of 1893 of 112,927 tons. This increase was distributed among the different fuels used. In addition to the stocks of pig iron above noted as unsold on December 31 last, there should be added 45,250 tons in the yards of the American Pig Iron Storage Warrant Company which had passed out of the hands of the makers, making 707,318 gross tons which may be said to have been on the market on December 31.

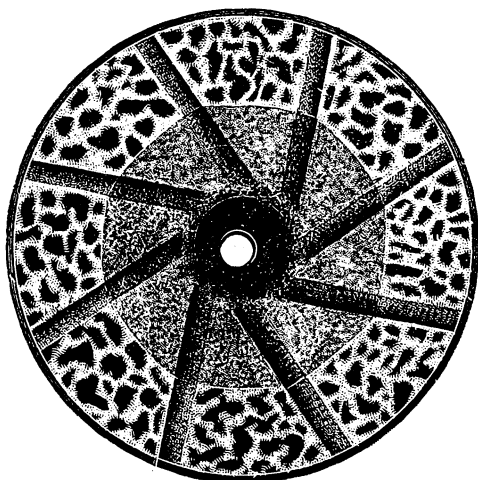
The Western Foundry Company have equipped a large plant on Albany avenue near Thirty-eighth street, Chicago, for the special production of light

the discussion that followed the naval authorities present expressed themselves as substantially in agreement with his views.

Rock Emery Millstone.

This millstone, unlike an emery wheel, is made up of large blocks of this rock, in its natural state, embedded generally in a filling of bronze that is as strong as cast iron and nearly as hard. The metal in the face of the stone being softer than the emery wears away, slightly exposing the hard emery edges that cut like a knife blade. This slightly recessed metal surface forms a "honeycombed" face, as shown in the engraving, in which the dark portions represent the blocks of emery.

The eye of the rock emery millstone and the furrows are made of sandstone or buhr, easily cut away when required to suit any kind of grinding. The surface can be smoothed to any degree for fine grinding, yet the face never



ROCK EMERY MILLSTONE.

gray iron castings. They aim to produce smooth, soft castings, true to pattern, and make a specialty of such work as sewing machine castings, gasoline stove burners, stove plate castings and hardware specialties. They also do fitting and japanning. The demand for castings of this character is steadily increasing in the West, and the Western Foundry Company will endeavor to secure their share of this trade, which has to a great extent been enjoyed by distant foundries. Their main office is in room 813, Royal Insurance Building, Chicago. D. F. O'Neil is president, N. F. Purcell is manager, and M. A. Rourke is secretary and treasurer.

Laird Clowes, of the United States Naval Institute, read a paper last week before the Royal United Service Institution in London on "The Ram in Action and in Accident." Mr. Clowes reviewed the results of all reported cases of ramming or attempts at ramming in modern naval warfare, and presented his conclusions on them as follows: 1, That to endeavor effectively to ram a ship that has sea room and is under control is hopeless, even if she be of greatly inferior speed; 2, that only vessels that can be sacrificed ought to be deliberately employed as rams; 3, that for ramming purposes a little ship is equally efficient with a big one. In

glazes. These millstones are made in all sizes to fit any common mill frame by the Sturtevant Mill Company of 88 Mason Building, Boston.

The following noteworthy record was made by the tug "El Toro," during the year ending September 30, 1893:

Steamships towed from company's piers to Erie Basin, or distance equal thereto.....	64
Steamships towed from piers Nos. 37 to 25.....	130
Steamships docked at piers Nos. 37 and 25.....	167
Lighters towed and moored.....	601
Miles run without tow.....	4,589
On fire duty.....	Remaining time
Days in commission.....	349
Coal consumed per day.....	1 1/4 tons
The full pressure of steam was kept on the boiler for the entire 24 hours. Boiler run four months without opening.	

This boat was built by the Newport News Steamship & Dry Dock Company, and is fitted with the See quadruple expansion engine.

The new United States cruiser "Montgomery" accomplished her official speed trial off New London, Conn., on January 19, proving herself a speedier vessel than either of her sister ships, the "Detroit" and the "Marblehead." The officially corrected speed made on the occasion has been reported by the

trial board as 19.056 knots an hour, or rather more than 2 knots above that called for by her contract. This will give her builders, the Columbia Iron Works of Baltimore, Md., a premium of \$200,000. The "Montgomery's" contract price was \$612,500.

The Penokee and Gogebic Ore Interests.

A new company, to be called the Penokee Iron Mining Company, has been formed at Milwaukee, Wis., with a capital of \$2,000,000, for the purpose of acquiring the mining properties of the Penokee Consolidated Mines, for which Howard Morris and C. F. Rand are receivers. If the deal results as it is expected to, work will probably be resumed at nearly all of the mines in question before very long. Howard Morris furnishes a local paper the following statement regarding the project:

"The ownership of the bonded indebtedness and all but a small amount of scattering stock of the Penokee & Gogebic Consolidated Mines has long been vested in gentlemen who owned this as well as other enterprises on the Penokee and Gogebic ranges. The present depression in the ore market and the consequent shutting down of the mines affords the owners of the properties involved in the present receivership an opportunity, which has for some time been under consideration, to thoroughly reorganize the corporation known as the Penokee & Gogebic Consolidated Mines and to establish it on a basis conformable to the changed condition of the trade. The newly appointed receivers express the hope that they will be successful in certain negotiations which have been already instituted for the welfare of the properties in their custody, and that their efforts will result in renewed activity along the Penokee and Gogebic ranges, both as to the mines and the railways. The new company has been organized for the purpose of acquiring some or all of the properties in question on terms which will protect the rights and equities of all the interested parties."

Neither the Ashland mine nor the Aurora mine is in any manner affected by the receivership of Messrs. Morris and Rand. Those properties are wholly independent of the Penokee & Gogebic Consolidated Mines and that corporation owns no stock in either of them.

The Fries-Lille Company, one of the famous bridge, engine and machinery building concerns of the Continent, made a gross profit of 3,331,406.98 francs during the last fiscal year. Of this 1,884,950 francs* was written off on account of the failure of two Argentine railroad companies. The net profit was 864,174 francs, out of which 840,000 francs was paid in dividends to the holders of 12,000,000 francs capital stock, and 21,176 francs went to the Board of Directors. The reserve fund amounts to over 1,800,000 francs.

Advices from Hartford, Conn., are to the effect that throughout Central Connecticut there are evidences of a steady revival in the industrial situation. It is claimed that Hartford has suffered comparatively little, that no factories have been shut down, and that hands who were laid off are gradually getting back to their work.

THE WEEK.

The Mayor of Cincinnati has been authorized to expend \$100,000 of the contingent funds of the city in providing work for the unemployed.

Cotton manufacturing in the Carolinas is apparently the most profitable business now carried on in the South. At meetings of stockholders of nearly all the mills of North and South Carolina, held recently, it is stated that the reports presented were uniformly gratifying, and dividends ranging from 8 to 16 per cent. were declared.

French papers say that 1893 was the best vintage year of the century, the weather having been peculiarly favorable for the grape crop.

Mayor Hopkins of Chicago has hit upon a plan for clearing the city of idle tramps and vagrants who are unwilling to work on the streets in return for meals and lodgings. He has issued orders that every man who applies at the police stations for lodging is to be offered work. If he refuses he will be driven by the police out of town.

An important decision, affecting millions of dollars' worth of property, was recently handed down by the Court of Appeals at Albany, which affirmed the right of foreign corporations to buy and sell real estate in the State of New York.

Apocryphal of the present agitation for the strengthening of the British navy, it is interesting to note that the tonnage of war vessels launched in England last year was very much less than that of several years preceding. The following indicates the total number and tonnage for five years, without including torpedo boats:

	Vessels.	Tons.
1889.....	31	52,110
1890.....	20	64,360
1891.....	19	107,985
1892.....	22	141,200
1893.....	14	33,330

With the view of averting a threatened loss of trade consequent on the opening of the Manchester Ship Canal, Liverpool is reducing her port charges and making other concessions.

The Commissioner of Navigation at Washington has decided that the vessel "Augusta," formerly the property of citizens of Venezuela, but now belonging to the Neafe & Levy Ship and Engine Building Company of Philadelphia, is entitled to American registry. The decision has given much satisfaction in the Quaker City, as it means, among other things, the employment of a number of Philadelphia mechanics in rebuilding the vessel.

A notable figure passed off the stage in Baltimore, Md., last week, in the person of George W. Skinner, the veteran shipbuilder, who died at an advanced age. He learned his trade with his uncle, Zackariah Skinner, the pioneer shipbuilder of Baltimore, and later, in conjunction with his father and two brothers, acquired a great reputation as builder of some of the most famous of the old clipper ships. George W. Skinner was the designer of some of the fastest sailing craft ever built.

Buffalo advices report that an alarming influx of vagabonds and mendicants is taking place in that city, most of whom have come on from Chicago, where Mayor Hopkins' "no-work-no-food" order has made their business un-

profitable. A steady stream of tramps and unemployed from the West is said to be moving toward the Eastern cities.

The unusual spectacle of labor giving financial assistance to capital has been afforded recently at Pittsburgh, where the Window Glass Workers' Council has loaned the sum of \$50,000 to a local glass manufacturing concern to enable them to keep their works in operation.

The Telephone Patent Situation.

The fundamental Bell patent, No. 174,465, expired on March 7, 1893, and it was thought by some that this made at least the telephone receiver public property. But the American Bell Telephone Company called attention to the structural patent on the receiver, issued January 30, 1877.

The decision of the Supreme Court sustaining the patent was as follows: "The patent itself is for mechanical structure of an electric telephone to be used to produce the electrical action on which the first patent rests. The third claim is for the use in such instruments of a diaphragm, made of a plate of iron or steel, or other material capable of inductive action; the fifth, of a permanent magnet constructed as described with a coil on the end or ends nearest the plate; the sixth, of a sounding box as described; the seventh, of a speaking or hearing tube as described for conveying the sounds, and the eighth, of a permanent magnet and plate combined. The claim is not for these several things in and of themselves, but for an electric telephone in the construction of which these things or any of them are used."

Although the expiration of this patent on the 30th of this month will free the receiver, there will still remain, protected by patents, modifications of the receiver which are of the greatest value.

The present status of the transmitter patents is thus summed up by the *Electrical Engineer*:

It seems to be thought by some that, because under the operation of Section 4887 of the Revised Statutes the Blake patents have expired in this country, the Blake transmitter is free; the patents of Francis Blake, however, do not of themselves cover the Blake transmitter; these patents are subordinate to Berliner, 463,569, of November 17, 1891—the famous "Berliner Patent"—and also Edison, 474,231, of May 3, 1892, besides the other two Edison microphone patents of May 3, 1892, numbered 474,230 and 474,232 respectively. Then there is the reissued patent of Berliner, No. 9499, of December 14, 1880, upon the induction coil, which has so far been ignored by writers on the telephone patent situation. This patent was originally No. 199,141, and issued on January 15, 1878. It therefore has one year to run, during which time the induction coil cannot be used without infringement. Then there is the patent of Watson, No. 217,561, of July 15, 1879, upon the attachment of the polished button to a metal back, which also has a bearing on the question. Section 4887 of the Revised Statutes has been referred to above and, as it has a most important bearing upon the subject, it is printed here in full, although it is doubtless familiar to many readers:

No person shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid, by reason of its having been first patented

or caused to be patented in a foreign country, unless the same has been introduced into public use in the United States for more than two years prior to the application. But every patent granted for an invention which has been previously patented in a foreign country shall be so limited as to expire at the same time with the foreign patent, or, if there be more than one, at the same time with the one having the shortest term, and in no case shall it be in force more than 17 years.

The fate of the Edison patents under this section of the patent law will not be known until a final decision in the Bate refrigerator litigation; both the life of the Edison lamp patent and the Edison transmitter patents hang upon the decision in this case. What has still to be decided is, What bearing, if any, has the date of application of the American patent with reference to the date of application of the foreign patent? In interpreting Section 4887 the Circuit Courts have held that the dates of domestic and foreign applications were irrelevant. It is now contended, in the new Bate case, that "previously patented in a foreign country" should be taken to mean previously applied for in a foreign country. The case of the Bate Refrigerator Company *vs.* Sulsberger *et al.*, decided June 7, 1893, *pro forma* in favor of the defendants, according to previous Circuit Court opinions, was appealed. It was expected to be argued in the United States Circuit Court of Appeals, in New York, in December, but has been deferred.

In the case of the Edison transmitter patents the application was made in the United States Patent Office prior to the foreign application; yet the English patent was issued, ran fourteen years and expired, before the United States patent was issued.

For a great part of this period the applications of Berliner and Edison were in interference. As is well known, during these many years of delay in the Patent Office the Bell Company own both sides of the interference. Now if in the Bate refrigerator case the Court shall decide that the date of application of the United States patent controls, then the Bell Company will have the protection of the Edison patents for seventeen years from May 3, 1892, and this protection it will have even though it be defeated in the Government suit now pending against it in Boston to annul the Berliner patent. In the Bate refrigerator case it is generally thought that the fate of the Edison lamp patent is the principal thing to be decided; the Westinghouse Electric & Mfg. Company are supposed to be interested in confirming the interpretation that Section 4887 means that the date of issue controls, while the General Electric Company, the owners of the Edison lamp patent, contend that the date of the United States application compared with that of the foreign application controls. While these two companies and the general public are interested in the refrigerator case from the incandescent lamp point of view, the American Bell Telephone Company and the public (if the public only knew it) are a thousand fold more interested from a telephone transmitter point of view; and it is a significant fact that F. P. Fish, counsel of the General Electric Company, is also of counsel for the American Bell Telephone Company. The latter company are not known in the case, but in the event of a favorable decision they will profit far more than will the General Electric Company.

The Iron Age

New York, Thursday, January 25, 1894.

DAVID WILLIAMS, - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, - - EDITOR.
GEO. W. COPE, - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - HARDWARE EDITOR.
JOHN S. KING, - - - BUSINESS MANAGER.

Premiums for Naval Vessels.

The question of premiums for vessels for the navy is now attracting considerable attention. Strong arguments are brought forward, both in support of and against the system. It is claimed that the increased efficiency of a vessel earning a premium more than counterbalances the extra sum paid by the Government. When a premium is paid for horse-power exceeding the requirements, it means that the builders have constructed a machine of specified dimensions more powerful than the specifications demanded. A premium paid for excess of speed implies that both hull and machinery have been proportionately increased in efficiency. On the contrary, it is stated the contract price has in the majority of cases been ample to insure to the builder a handsome profit, and that he should not be paid anything in excess of this. Further than this, it is claimed that the new navy has cost much more than it should, even if no premiums had been paid, comparison being made of the cost of ships of the same class constructed here and abroad. Advocates of this policy always forget that at the time the new navy was begun there was not an iron plant in the United States capable of producing the material needed by a modern warship, nor a ship yard equipped with the appliances necessary for handling this material. The cost of these increased facilities has been borne in part, and we think very justly, by the Government in paying well for the work done; but the result has been to place at the disposal of the Government in time of need plants second to none in Europe.

We find that the "immense sums" paid in premiums dwindle most dimly when we consider them as a percentage of the aggregate contract price. The vessels of the new navy now in service cost in round numbers \$24,000,000, and those building will cost \$25,000,000. Premiums so far paid for excess in speed have amounted to \$1,540,000, including the premium of \$300,000 earned by the "Olympia" and that of \$200,000 won by the "Montgomery," both of which were decided last week. Premiums paid for horse-power beyond the requirements have amounted to \$187,000, and penalties have been exacted of \$67,092. Deducting the amount of the penalties we find that a total of \$1,659,908 has been paid in addition to the contract price, or not quite 7 per cent. of the whole. This is an exceedingly

small proportion when we consider the increased advantages obtained.

There is another point from which to view the speed premium question. The contract price of the "Columbia" was \$2,725,000, a premium of \$50,000 being offered for each quarter of a knot over 21. She earned \$350,000, making a speed of $22\frac{3}{4}$ knots. The Government therefore paid \$350,000 for a speed increase of $1\frac{3}{4}$ knots. The query that now comes up is this: If the specifications had called for a speed of $22\frac{3}{4}$ knots could she have been built for the amount actually paid plus the premium earned, or \$3,075,000? We do not believe any ship building establishment in this country would have taken a contract to build the "Columbia" for this sum if the speed requirement had been $22\frac{3}{4}$ knots. If this assumption is correct, the Government secured a speed it could not have obtained in any other way at the same price.

We do not think the statement that the premium system induces the bidder to reduce the amount of his bid has any foundation in fact. In the first place a boat costing one or two millions of dollars is a dangerous thing to experiment with in that way. Again, American shipbuilders have not had sufficient experience in warship construction to permit them to make their bid cover only the bare cost of construction and to depend upon premium earnings for their profit.

Looking Forward.

There is excellent ground for the belief that as soon as the tariff legislation now pending is disposed of a substantial recovery from the business depression will take place. This is by no means an original discovery, and is not announced as such. From the time that the symptoms of acute financial distress were first visible the prediction was made by far-sighted business men of long experience that there would be no recovery from trade depression until after the tariff question was settled. They insisted that the silver question was merely an incident, and that while it was very important that the country should no longer be permitted to drift toward a silver basis yet tariff agitation would be found to cut a much more important figure than the issue as to whether silver purchases should or should not be continued by the Government. But they further claimed that with the readjustment of the tariff and the fiscal policy thus settled for some years industrial activity would take on new life. The lapse of time has brought forth concrete facts for the support of what was then almost a theoretical proposition. One has but to read the industrial items as they now run in our columns from week to week to be convinced of this. Projects are again coming forward, some of them of considerable magnitude, which point to enlarged consumption and particularly show returning confidence in the

restoration of business to its normal proportions.

It is admitted on all sides that the work of recuperation from the extreme depression of last fall has already made considerable progress. Consumption has increased to some extent, and productive forces have been called on to supply it. With so much idle manufacturing plant in the country and the desire of owners to put it in operation the tendency is toward anticipating the growth of consumption, and consequently prices have retrograded in apparent contradiction of the claim that business is improving. But notwithstanding the lack of stability in market prices and the intermittent manner in which manufacturing establishments are running, there is a steady increase in the volume of business as a whole. Many works are still idle, some hopelessly so, but every week for the past two months has shown more started than stopping. The army of the unemployed is still painfully large, but it is being reduced instead of growing, as was the case last fall.

Merchants whose trade is not confined to a single locality, but who feel the influences pervading a wide scope of country, report a marked increase in the business going over their desks and finding its way to shipping clerks. They may be prepared to handle very much more trade and impatiently await the time when their facilities will again be taxed, but in comparison with the dullness of July to September they feel thankful that they are doing so well, and they look forward more hopefully to the future.

In this connection an interesting calculation has been made by a prominent Western merchant of the time probably required for a restoration of his business to the conditions ruling from 1890 to 1893. His customers have felt the depression in about the average way, perhaps not so keenly as some and probably a little more severely than others. His trade has shown a continuous gain since October 1, but it has amounted to less than 5 per cent. per month. An increase of 10 per cent. per month would, under ordinary conditions, be considered by any merchant as exceptionally favorable, and yet at that rate of growth it would require nearly a year from the present time to bring his monthly sales up to the average of, say, 1892. Such a calculation, considered as a mere mathematical proposition, would seem altogether too favorable, and it is therefore not strange that numerous business men believe that all of two years, and perhaps even a longer period, may be required for the complete recovery of lost ground. But the depression in business has been of such a phenomenal character, and was not caused by an inflation of values or rampant speculation and over trading, that it is by no means a violent presumption that recovery will be exceptionally rapid after disturbing influences are eliminated from the business

situation. One cloud after another has been lifted, and with the disappearance of the tariff controversy from immediate consideration as a potent factor in trade circles there will be nothing left to discourage the enterprises which are even now struggling to enter upon active existence.

Edward Atkinson, the well known economist, who has been gathering statistics of the present number of unemployed in the United States, says that the largest figures that can be claimed on any reasonable showing is 1,150,000. *Bradstreet's*, after careful investigation by its agents throughout the country, places the number at 800,000. But, as Mr. Atkinson points out, these figures must not be accepted as indicating the number actually thrown out of employment by the industrial depression, as it includes the great body of chronic idlers and those of uncertain employment who are always with us, even in the times of greatest activity. In his judgment those classes comprise two-thirds of the number of persons now returned under the head of "unemployed."

PERSONAL.

John Jarrett, secretary of the Association of Iron and Steel Sheet Manufacturers of Pittsburgh, and W. C. Cronmeyer of the United States Iron & Tin Plate Mfg. Company, Demmler, Pa., are in Washington for the purpose of looking after the interests of the above organization during the progress of the debate on the Wilson bill. In case the Senate Finance Committee decides to give hearings to the industries affected by the Wilson bill, Mr. Jarrett and Mr. Cronmeyer will see to it that the industries they are interested in are well represented.

David Williams, publisher of *The Iron Age*, was a passenger on the steamship "Normannia," which was forced to return to New York, having been struck by a tidal wave.

S. L. Schoomaker, New York representative of the Homestead Works and of the H. C. Frick Company, has succumbed to overwork and will take a few months' rest. A. L. Griffen, for so many years identified with the Keystone Bridge Company, has assumed charge.

John Stanton of New York has been elected president and G. W. Bramwell secretary of the Engineers' Club of New York, which has just closed a prosperous year. Its present membership is 652 and it has a cash surplus of over \$11,000.

Theodore Fry, an English iron manufacturer, whom many Americans remember as one who has repeatedly visited this country, has been made a baronet.

James T. Cowan, who was formerly connected with the foundry department of the Dickson Mfg. Company of Scranton, and later organized and operated the gray iron foundry of the General Electric Company, at Lynn, Mass., has been appointed superintendent of the foundries of the Corning Iron Works, Corning, N. Y.

OBITUARY.

JOHN DEMING.

The death of John Deming occurred at his home in Salem, Ohio, on the 10th inst. Mr. Deming died of pneumonia after an illness of one week. He had nearly reached the age 77 years, having been born in Berlin, Conn., February 21, 1817. When about 15 years old he went to Ashtabula County, Ohio, with his parents, where they settled down. After reaching his majority Mr. Deming engaged in business with his older brother, William S. Deming, in a general store, at New Lyme, Ashtabula County. On October 25, 1849, he married Miss Angelina S. Bown, daughter of Benjamin E. Bown, of Pittsburgh, with whom he was for a time associated in the wholesale and retail grocery business in that city. In 1850 Mr. Deming removed to Salem, where he engaged in farming for about six years, after which he entered the grocery business again for a period of three or four years. In 1859 Mr. Deming and his father-in-law, Mr. Bown, removed to Cincinnati, where they engaged in the manufacture of confectionery and importation of foreign fruits, nuts, &c. He continued in this business until 1864, from which time until 1868 he was identified with the pottery trade. In 1866 he bought an interest in the business of Dole & Silver, manufacturers of labor saving tools. The firm became Dole, Silver & Deming, and largely increased its facilities. Upon the death of Mr. Dole the firm name was changed to Silver & Deming, and continued under this style until 1874, when the business was incorporated under the name of the Silver & Deming Mfg. Company, with enlarged facilities and more varied output. Mr. Deming was for many years vice-president and treasurer of this company. The manufacture of pumps and hydraulic machinery was commenced in 1880. In 1890 the corporate title was changed to the Deming Company, which continued the pump and hydraulic machinery part of the business. Mr. Deming became president of the company, an office which he filled until his death. His two sons, Walter F. and William L., are also officers of the company and actively engaged in its management. In his earlier years Mr. Deming was prominently identified with the anti-slavery movement in his section and was a follower of William Lloyd Garrison, founder of the Garrisonian anti-slavery party, and for several years faithfully observed its principles in refusing to vote. He was an earnest advocate of temperance and a warm friend of the cause of education. Many tributes are paid to his worth, indicating the esteem in which he was held.

WILLIAM H. KRETSINGER.

William H. Kretsinger, vice-president and manager of the Iowa Farming Tool Company, Fort Madison, Iowa, died at his home in that city on January 3. Mr. Kretsinger had been for a long time confined to his house, having been a sufferer from heart disease, and the end was not unexpected. Mr. Kretsinger was a native of Herkimer County, N. Y., and was born in the town of Fairfield, July 25, 1816, so that at the time of his death he was in his 78th year. Mr. Kretsinger received his early education in the district schools, and afterward took a course at the Fairfield Academy. Subsequently he became engaged in mercantile pursuits at Fairfield, and was afterward occupied in

the manufacture of farming implements at Clayville, N. Y., being thus employed for about seven years. He then decided to seek a location in the West, and went to Chicago, where he engaged in the sale of agricultural implements and other heavy hardware until 1871. He then went to Fort Madison and identified himself with the manufacture of farming implements as a member of the firm of Soule, Kretsinger & Co. In 1874 Mr. Kretsinger organized the Iowa Farming Tool Company, and was appointed their superintendent and vice-president. At the time of his death Mr. Kretsinger was also president of the Fort Madison Savings Bank. He also served as County Supervisor, and was an Alderman for two years. Mr. Kretsinger was one of the most influential and respected citizens of Fort Madison, and his death is mourned by the community at large, by whom he was held in very high esteem.

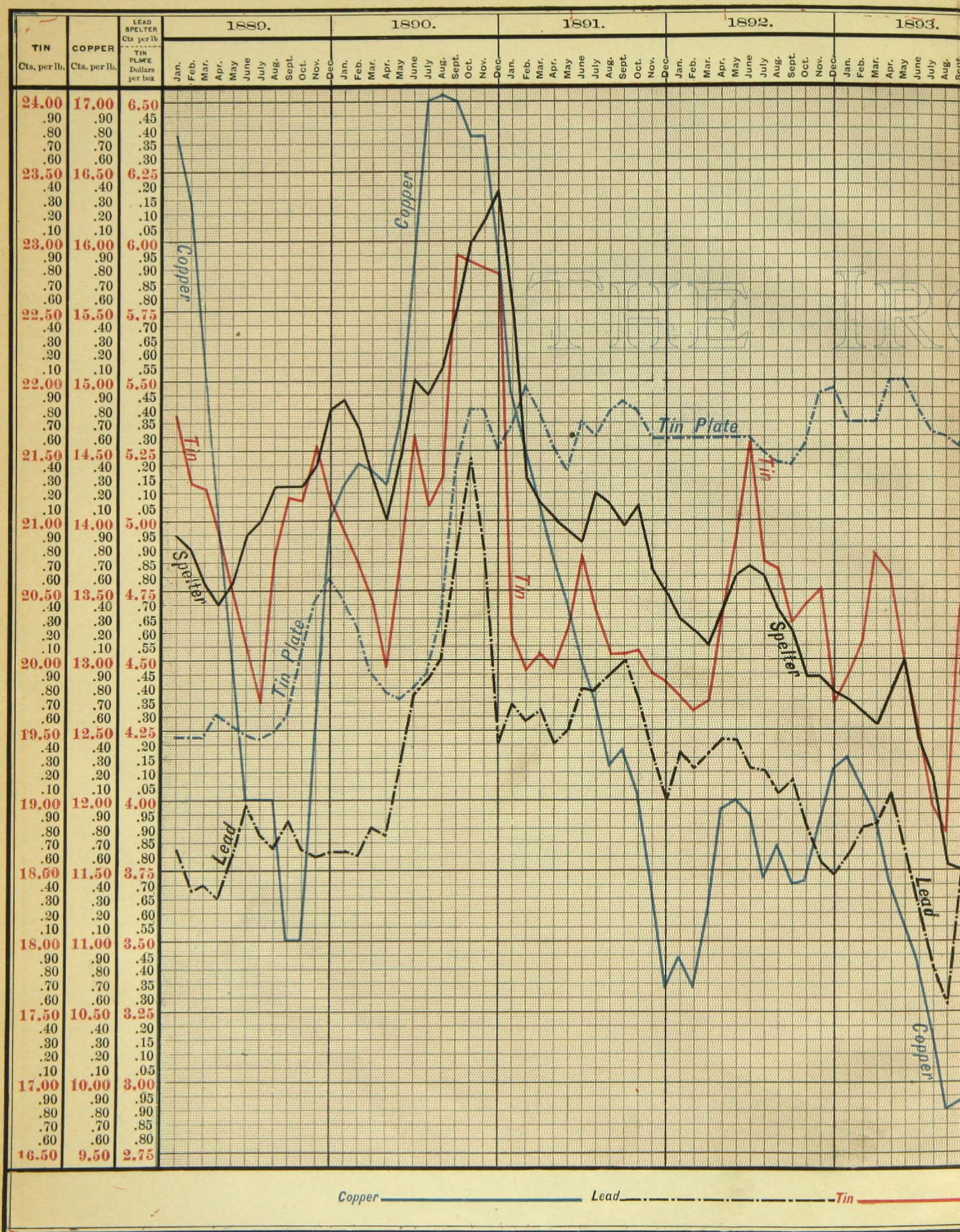
CHRISTIAN H. BUHL.

Christian H. Buhl, founder of the house of Buhl, Sons & Co., Detroit, Mich., died January 23, in the 84th year of his age. Reference to the business career of Mr. Buhl, who was undoubtedly one of the oldest hardwaremen in the country, is deferred to a subsequent issue.

J. H. HARRIS.

John Henry Harris was born at Troy, N. Y., January 4, 1838, and received his early education at Springfield, Mass. At the breaking out of the war he entered the volunteer service in the navy, and was made acting master's mate June 4, 1861; acting ensign August 1, 1862, and acting master July 16, 1864, and was honorably discharged January 18, 1866.

Removing to Worcester, Mass., he for a time studied law in the office of Senator Hoar, but as his taste and inclination was for a more active life he soon after connected himself with Geo. F. Blake & Co., builders of steam pumps in Boston, Mass., and for several years had charge of their office and business in New York City. Desiring to enter into a wider field of operation he connected himself with the firm of Henry R. Worthington, and later on went to London for the purpose of introducing the products of that firm into the markets of Europe. The almost phenomenal success that attended his efforts there, the numerous and influential friends made among engineers and long established engineering firms, was a matter of much satisfaction to him personally and of great benefit to the firm whose interests he had so much at heart. He formed in England the Worthington Pumping Engine Company, of which he was vice-president and general manager. He was also chairman of the executive committee of Henry R. Worthington, Incorporated. Mr. Harris was a member of the Institute of Mechanical Engineers of Great Britain, also a member of the Naval Architects and of the Society of Arts, London. He was also a member of the American Society of Mechanical Engineers, of the Loyal Legion, Lafayette Post, United States Service Engineers, and other social clubs. His last illness was of long duration and of a painful character, and had he been less the energetic man that he was it would much earlier have ended his career. He leaves a wife, two daughters and a son, who together with a wide circle of warm friends mourn his death.



FLUCTUATIONS IN THE PRICES OF THE LEADING METALS

Monthly from 1889 to 1893, Incl

Fluctuations in the Metals in 1893.

[With Supplement.]

Since a pictorial representation conveys a far clearer conception of the fluctuations in the values, we present elsewhere for the convenience of the metal trades a supplement which shows the movement of the prices of copper, lead, tin, spelter and tin plates during 1893, based on the weekly quotations of *The Iron Age*, except in the case of lead, for which the daily reports of values by E. A. Caswell of New York were taken as the basis. In order to allow of a quick comparison of the course of values in 1893 with that of previous years back to 1889 we have presented on a part of the chart the fluctuations for five years, basing them on monthly averages of quotations. In every case the figures represent New York prices.

Copper.—Beginning the year with a generally hopeful feeling in the trade, with a fair prospect for a heavy demand, chiefly for electric work, those interested were doomed to disappointment. Consumption showed a declining tendency even early in the year, and in April export sales and contracts with home consumers were made at a heavy decline as compared with the opening prices of the year. The financial panic which developed in June led to the canceling of considerable amounts by American buyers and soon forced the producers to seek an outlet abroad. Then came the extraordinary export movement for which the year 1893 will remain remarkable in the annals of the American copper trade. A scramble to fill up foreign markets began, in which the holders of casting copper, electrolytic copper, lake copper and matte all took a hand, underselling the foreign markets right and left. Large blocks of lake copper were sold, 4000 tons being sold in one week to go to Germany at 9½ cents, while considerable quantities were purchased for the Russian, French and English markets. From the middle of July to August 1 about 16,000 tons of Montana matte were marketed in England, that quantity including about 6000 tons of Anaconda material. Starting with 9 shillings per unit, the price worked down to 8 shillings. Then Montana producers withdrew from the English market and succeeded subsequently in placing during October large quantities of furnace material with home refiners. Relieved of the pressure, the markets recovered somewhat during the latter part of the year. One factor assumed growing importance whose influence has long been predicted and which has steadily come into prominence, and that is the competition between lake and electrolytic brands, which is robbing the former more and more of its pre-eminence in quality.

Lead.—Opening with a dull market in January, greater activity developed during the month and continued during early February, the impression being that production was below the normal. Freer offerings, however, somewhat depressed the price, at which larger purchases set in, carrying the metal upward. Quite a heavy movement developed during March and the first half of April, with a corresponding advance, which was checked, however, by rumors of sales of foreign lead. With occasional temporary recovery, the price then declined steadily during May, June, July and August, the growing financial stringency and lessened

demand overshadowing the much advertised restriction of production through the agitation of the silver question. This curtailment of production began to tell, however, toward the close of August, the advance being aided by speculative movements. The necessity on the part of the holders to realize on an unwilling market drove the metal back. Speculative manipulation caused temporary recovery, but ultimately the metal dropped in December to the lowest point touched.

Spelter.—The year 1893 has been a very unfavorable one for the spelter producers of the United States, the demand having fallen off heavily as the result of the great depression in the galvanizing and brass trades. Values started on the down grade but recovered a little in April as the result of anticipated trouble in the coal mines of Kansas which supply the Kansas smelters with fuel. Late in March an effort was made to bring the Western spelter producers together with a view toward forming an association. The scheme fell through finally, early in May, and under the added pressure of the financial panic prices crumbled away until the end of August. Considerable export sales and a restriction of production brought the supply into a better relation with the demand and a recovery took place. It is estimated that the Western zinc smelters produced only 28,000 net tons of spelter during the second half of 1893, as compared with 38,414 tons during the first six months.

Pig Tin.—At the beginning of the year pig tin sold at 19.80 cents. From that point there was an advance to 21.30 cents for spot and 21.80 cents for August delivery, under the stimulus of speculation due to the McKinley tariff. Meanwhile large stocks accumulated owing to heavy shipments to this quarter prior to July 1, the date on which the duty went into effect. The consequent heavy supply, however, ultimately had a depressing effect, and in August the price was as low as 18.20 cents for spot tin. Subsequent manipulation brought about a rise to 20.55 cents, from which price there was little change up to the close of the year.

Tin Plate.—At the beginning of the year 1893 ordinary Bessemer coke finish tin plate, 100-pound, was quoted at \$5.12½. That proved to have been the highest point of the year, since trade here was disappointing and the general situation in the foreign markets quite the reverse of encouraging to heavy purchases by dealers or consumers. The price gradually drooped and by the end of the year was down to \$4.85, a decline in 12 months of nearly 27½ cents per box, with merely routine business transacted.

The Sultan of Turkey has conferred the Grand Cordon of the Medjidich, the highest distinction in Turkey, on Hiram S. Maxim, in recognition of his inventions, particularly that of the quick-firing gun which bears his name.

The Pottstown Iron Company offer a new proposition to their creditors. It is understood that holders of \$270,000 of the bonds have expressed their willingness to come in on the same terms as the creditors.

Last Saturday was the first pay day for puddlers at the Terre Haute Rolling Mill since last June.

British Iron and Metal Markets.

[Special Cable Dispatch to *The Iron Age*.]

LONDON, WEDNESDAY, January 24, 1894.

Pig Tin prices advanced early in the week to £72. 15/ for prompts, but subsequently weakened to £71. 2/6. The comparatively small shipments from the Straits along with moderately active buying for American account led to the early advance. Subsequent realizations and the decline in silver caused the reaction, and the market at this time is somewhat feverish. Latest dealings were at £71 for prompts and £71. 17/6 for three months' futures.

Copper was firmer early in the week, owing to favorable fortnightly returns, better buying orders for American account and more activity in the demand from consumers. Adverse influences, notably the condition of the silver market, caused a reaction, and during the past few days the market has been dull, with sales of Merchant Bars, prompt delivery, at £41. 8/9. Sales of furnace material latterly have been on a small scale, since smelters have been engaged in stock taking and other routine business. Recent sales include 500 tons ordinary Montana Matte at 8/7½. In the market for Merchant Bars the last dealings were at £41. 10/ for prompts, and £41. 17/6 three months' futures. Best Selected English quoted at £45 @ £45. 10/.

The demand for Tin Plate has been somewhat better, and more orders have been placed. Prices, however, were exceedingly low and generally the cheapest thus far this year. Full weight, 14 x 20 Bessemer Cokes went at 10/, f.o.b. Swansea, which seems now to be a common selling price. Squares and odd sizes were disposed of at 10/9, same delivery. The outlook is not encouraging. Buyers of Oil sizes are holding back with a view of obtaining still lower rates. Liverpool prices are quoted as follows:

IC Charcoal, Alloway grade.....	12/3 @ 12/9
IC Bessemer Steel, Coke finish.	11/ @
IC Siemens	11/3 @
IC Coke, B. V. grade, 14 x 20.....	11/ @
Charcoal Terne, Dean grade.....	10/6 @

Pig Lead has met with slow sale and the market is hardly steady. Last quotations were £9. 5/ for ordinary Spanish.

Spelter is in limited demand and the market shows rather weak tone. There are sellers at £16. 5/ for ordinary Silesian.

In the Pig Iron market there has been some increase in sales, and a better demand is noted also for some lines of Old Material and in Manufactured Iron and Steel, but not enough to turn prices for the better, except in the instance of war-rants. Latest transactions in the latter were at 43/6 @ 43/7 for Scotch, 36/ for Cleveland and 45/1½ for Hematite.

MANUFACTURING.

Iron and Steel.

On motion of the second mortgage bondholders the plant of the Columbia Iron & Steel Company, at Uniontown, Pa., will be offered for sale by the sheriff on Saturday, February 10 next. Executions amounting to nearly \$500,000 have been entered up against the plant. The executions consist of \$120,000 worth of first mortgage bonds, \$350,000 worth of second mortgage bonds, and a mechanic's lien of \$12,000, held by John Huckestein of Pittsburgh. The first mortgage bonds are held by Uniontown capitalists, and were purchased from their original owners for \$90,000. The second mortgage bonds are held by Pittsburgh capitalists, who took the bonds for debts against the company, and who are represented in the present transaction by the Safe Deposit Company of Pittsburgh. The most liberal estimate placed on the value of the plant will not more than pay off the mechanic's lien and the first mortgage bonds, as the cost of the mill when new was only \$750,000.

The business heretofore carried on by John Moorhead, Jr., under the firm name of Moorhead, Brother & Co., operating the Vesuvius Iron & Nail Works, at Sharpsburg, Pa., was dissolved on the 18th inst. All debts due to the said partnership are to be paid, and those due from the same satisfied, at the branch office of Moorhead, Brother & Co., Incorporated, Pittsburgh, where the business will be conducted in the future by the last-named concern.

No. 2 furnace of the Dunbar Furnace Company, Dunbar, Pa., resumed operations last week, after an idleness of about a year. The employees submitted to a reduction in wages averaging about 20 per cent.

The Bessemer steel plant of the Ashland Steel Company, Ashland, Ky., which has been idle for some months, has again resumed operations.

At the annual meeting of the stockholders of the Cleveland Rolling Mill Company, Cleveland, Ohio, held last week, the following Board of Directors was elected for the year 1894: Hon. H. B. Payne, J. H. Wade, William Chisholm, G. W. Howe, W. B. Chisholm, Douglas Perkins and E. S. Page. At a meeting of the directors the following officers were chosen for the ensuing year: William Chisholm, president; W. B. Chisholm, vice-president, and E. S. Page, secretary.

The stockholders of the Bethlehem Iron Company, South Bethlehem, Pa., will meet at that place on February 14 next to vote on a proposition to increase the capital stock of the concern from \$5,000,000 to \$10,000,000.

We are advised that the report that the plant of the Laughlin & Junction Steel Company, Mingo Junction, Ohio, resumed operations last week is untrue. The entire plant of this concern is still idle.

The wire drawing department of the plant of the Pittsburgh Wire Company, at Braddock, Pa., resumed operations last week, giving employment to about 100 men. The rod mill has gone on double turn, giving employment to about 200 men. Previous to resuming operations, the "rippers" employed in the wire drawing department were notified by Thos. W. Fitch, superintendent, that the same rate of wages would prevail as existed for similar work in the plant of the Braddock Wire Company, being 5½ cents per 100 pounds. The men refused to accept this reduction, and their places were promptly filled with new men.

The Ashland Iron & Steel Company of Ashland, Wis., are making preparations for next summer's operations at their charcoal blast furnace. A Milwaukee paper states that nearly 70 teams are hauling wood to a single kiln location.

The people of Anderson, Ind., are not disposed to permit the Irondale Iron & Steel Company to remove their plant to Middletown. The company received a gift of land and a cash bonus to locate at Anderson, and there is a probability of a bitter legal fight over the proposed removal to another town.

Jasper H. Moulden has been appointed receiver for the Greenfield Iron & Nail Works of Greenfield, Ind. Suits have been brought against the company by the Block Pollak Iron Company of Cincinnati for \$4950, and Joseph Joseph of the same city for \$6350. The owners of the works are

Wm. C. Whitehead, Franklin and John Landers, E. C. Egan and W. G. Wasson, all of Indianapolis.

The Los Angeles Iron & Steel Company of Los Angeles, Cal., have their rolling mill so well along that they expect to put it in operation about March 1. The mill will contain one stand of three-high plate rolls, 22 x 60 inches; one stand of two high roughing rolls, 26 x 90 inches; one stand of two-high sheet rolls, 22 x 42 inches, and one three-high 20-inch muck train. They will use wrought iron scrap and steel billets, and will make sheet iron, light plates, corrugated roofing, and at an early day expect to add a galvanizing department. Familiar names are seen in the list of officers. F. N. Myers is president; A. S. Robbins, vice-president; J. G. Chamberlain, general manager, and Fred. R. Harris, superintendent of the mill. With men of such long experience and high standing in charge there is every reason to look for a successful career for this new enterprise.

The sale of the property of the Brady's Bend Iron Company, Brady's Bend, Pa., has been adjourned to February 6. This is the seventh postponement of the sale of the above property.

The report of the appraisers in the assigned estate of the Montgomery Iron Company, operating the Montgomery Furnace, at Port Kennedy, Pa., was filed last week at Norristown, Pa., Edgar S. Cook being one of the appraisers. The furnace property, on which repairs are in progress, is appraised at \$45000 and the personal property at \$4,847.93. The liabilities are estimated at \$325,000.

A satisfactory adjustment of the wages of the employees of the National Rolling Mills, at McKeesport, Pa., was made last week, and preparations are now being made to resume operations. The firm will endeavor to give as many men work as possible.

Nearly all departments of the plant of the Riverside Iron Works, at Wheeling, W. Va., are now in full operation. These include the blast furnace, Bessemer steel plant, tube works and plate mill.

The annual meeting of the stockholders of the Brier Hill Iron & Coal Company, operating the Brier Hill furnaces, was held in Youngstown, Ohio, last week, and the old directors, consisting of George, John and Henry Tod, J. G. Butler, Jr., and H. H. Stambaugh were re-elected. After the meeting of the stockholders the directors met and elected the following officials: Geo. Tod, president; Henry Tod, vice-president; H. H. Stambaugh, secretary and treasurer, and J. G. Butler, Jr., manager.

As announced some time since in these columns, a meeting of the stockholders of the Ohio Steel Company was recently held at Youngstown, Ohio, at which it was decided to proceed with the erection of the balance of the plant and complete it as soon as possible. Plans and estimates for the work to be done were submitted at the meeting, and recently some of the orders for machinery have been placed. Wm. Tod & Co. of Youngstown have been given the contract for the building of three engines of extra large size. Two of them will be 40 x 60 and the other 46 x 60. The Lloyd-Booth Company, also of Youngstown, Ohio, have received the order for the roll tables, while the order for considerable other machinery was given to the Robinson-Rea Mfg. Company of Pittsburgh, Pa.

At a meeting of the stockholders of the Cambria Iron Company, Johnstown, Pa., held in Philadelphia, Pa., last week, the following directors were elected: Josiah M. Bacon, A. J. Drexel, Jr., Robert F. Kennedy, James McMillen, David Reeves, Powell Stackhouse, John W. Townsend. John Lowber Welch and R. Francis Wood. Subsequently a special meeting was held for the purpose of voting on a proposition to increase the capital stock of the Cambria Iron Company from \$5,000,000 to \$10,000,000, and also for or against a proposed increase of the funded indebtedness by an issue of bonds to the amount of \$2,500,000. A resolution was also adopted giving the Board of Directors authority to make the proposed increase at their discretion, should occasion require it.

Officials of the Amalgamated Association deny the report that the strike at the sheet mills of Kirpatrick & Co., Leechburg, Pa., had been declared off.

The Isabella Furnace Company of Pittsburgh, operating the Isabella furnaces, at Sharpsburg, Pa., have made a second reduction of 10 per cent. in the wages of their

employees. Three stacks are comprised in the above plant, two of which have been idle for some months.

The Duquesne Tube Works Company, Ferguson Building, Pittsburgh, with works at Duquesne, Pa., have closed down their entire plant for an indefinite period. While this firm could secure their share of the business going, they have been indifferent about operating on prevailing prices. Some improvement in inquiries during the past week or two has been noted, but there has been no improvement in prices. As soon as trade revives a portion of the above plant will be started up, and when conditions warrant the entire plant will be put in operation.

The Ohio Falls Iron Works, at New Albany, Ind., resumed operation on the 15th, giving employment to about 125 persons. The works are being run on orders. It is hoped the orders of the company will increase so as to keep the establishment busy for some time.

The Bessemer Steel Works, at Troy, N. Y., have closed. The puddlers employed at the Albany Iron Works have not yet reached any agreement as to returning to work at the reduced rates offered by the receivers.

The Capital City Malleable Iron Company of Albany, N. Y., have elected the following officers: President, David F. Skinner; vice-president, F. A. Owens; treasurer, G. A. Van Allen; secretary, E. C. Skinner; trustees, the above officers and J. P. Mills and A. B. Conde.

At the annual meeting of the stockholders of the Addyston Pipe & Steel Company the following directors were chosen: Matthew Addy, W. P. Anderson, B. S. Cunningham, Larz Anderson, Henry Hanna, William A. Proctor, Charles D. Kinney, Alex. McDonald and B. F. Houghton.

The McDaniel & Harvey Company of Philadelphia, sheet iron manufacturers, have recently installed a complete modern plant for making painted and corrugated iron sheets, curved sheets and standing seam and roll and cap roofing. The plates will be rolled in their own mills and the manufacture completed in their own works. They will continue to make galvanized steel sheets and their "genuine old fashioned charcoal bloom galvanized iron sheets," Eagle brands.

Notwithstanding the fact that the Colorado Fuel & Iron Company of Pueblo, Col., have done but little business since August, they did a largely increased business in 1893 as compared with the preceding year. Their products for the two years were as follows, in gross tons: Pig iron, 1893, 43,047 tons; 1892, 31,231 tons; spiegel, 1893, 2507 tons; 1892, 1017 tons; castings, 1893, 2057 tons; 1892, 1645 tons; pipe, 1893, 2486 tons; 1892, 2066 tons; steel rails, 1893, 40,039 tons; 1892, 24,384 tons; spikes, 1893, 271 tons; 1892, 125 tons; merchant iron, 1893, 5930 tons; 1892, 4355 tons; steel angle bars, 1893, 53 tons; Orient ore, 1893, 48,167 tons; 1892, 31,814 tons; Calumet ore, 1893, 26,277 tons; 1892, 13,938 tons.

No. 2 furnace of the Sloss Iron & Steel Company's Birmingham, Ala., plant made a record during the second week in January, producing a total of 1213 tons for the week, or a daily average of 173 tons. It is claimed that this beats all previous records made by any furnace in the South of equal dimensions and is far ahead of the best daily average of much larger furnaces.

The rolling mill of the Blandon Iron & Steel Company, at Blandon, Pa., has resumed after several weeks' idleness.

The Florence Iron Works, at Florence, N. J., have received a number of orders for pipe and have put 250 men at work.

Norton Furnace, at Ashland, Ky., has blown in. During its idleness the furnace was repaired.

Three fires have been started in the furnaces of the melting department of the Atha & Illingworth Steel Works, at Newark, N. J. These works have been closed down since July of last year.

After an idleness of many weeks the puddling mill and one plate mill of the Parkesburg Iron Works, at Parkesburg, Pa., have started up with 100 hands.

It is stated that a Philadelphia syndicate are negotiating for the purchase of the Macungie Anthracite Blast Furnace, at Macungie, Pa., in which event it will resume at an early date. The furnace was formerly operated under lease by the Crane Iron Company, but has been out of blast for some time.

The *Post-Intelligencer* of Seattle, Wash., prints the following: W. D. Hofins, accompanied by Mr. Morris, a coal expert of Trinidad, Col., are on the Sound looking for a site to establish an iron furnace. Mr. Hofins contemplates bidding for the iron piping for the new works at Portland, and if he is successful he says he will construct a steel and iron plant upon the Sound.

Wm. Neal & Sons have blown out their furnace at Bloomsburg, Pa., after being in active operation for almost 45 years. It is stated that the supply of ore is exhausted, and that it is not likely that the furnace will ever start up again.

The Scottdale Iron & Steel Company, Limited, Scottdale, Pa., will, it is stated, soon begin the erection of an iron and steel sheet mill as an addition to their plant, in which 50 men will be employed.

The Ellwood Iron & Steel Works, at Youngstown, Ohio, have been sold to Arthur Campbell of Cambridge at assignee's sale for \$34,000.

One of the furnaces of the Dayton Coal & Iron Company of Dayton, Tenn., is banked on account of labor trouble.

During last week Brown, Bonnell & Co.'s mill, at Youngstown, was idle. The mills of the Union Iron & Steel Company were in operation; also Andrews Bros., at Hasel-ton.

The Riverside Mill, at Cincinnati, started up last week after making repairs and met with another misfortune, breaking a driving wheel, and a further delay of several weeks is expected. Swift's mill is closed down indefinitely.

At New Philadelphia, Ohio, the New Philadelphia Iron & Steel Company are running part of their sheet mills, and the new galvanizing plant is nearly completed. The New Philadelphia Wire Nail Works are running double time, with plenty of orders ahead.

Machinery.

The report that a reduction of 50 per cent. in wages of the machinists employed in the shops of the Baltimore & Ohio at Mt. Claire has been denied. A short time since the working hours were reduced from ten to eight hours per day.

The machine shops of Russell & Co., at Massillon, Ohio, which have been closed down for some time, partially resumed operations last week, giving employment to 130 men. The number is being increased just as rapidly as orders warrant, and it is expected that during this week 175 men will be at work. In former times this concern gave employment to 750 men.

The Westinghouse Brake Company, Limited, London, England, have declared a dividend at the rate of 20 per cent. per annum for the six months ending December, 31, 1893.

The Lodge & Davis Machine Tool Company, Cincinnati, Ohio, have received an order for one of their largest drill presses to go to Mare Island Navy Yard.

James McNeil & Brother, boiler manufacturers, of Pittsburgh, are building a main for the Pittsburgh Water Works, which calls for 2700 feet of pipe of 50-inch diameter with $\frac{3}{4}$ -inch plates. The same firm recently completed and erected a stack for the Edison Light Company of Chicago, which is 210 feet high and 14 feet in diameter.

A machine shop is being built at Center-ville, Iowa, by G. W. Smith, formerly of Allentown, Pa. It will be well equipped with machinery of the latest pattern, and is to be in running order within 60 days.

The Piqua Boiler Works, Piqua, Ohio, which went into the hands of Receiver J. W. Daniels several months ago, have just been sold to the firm of Casey Brothers of Chattanooga, Tenn. The plant has been closed down since the appointment of the receiver, but will start up immediately.

The James Hunter Machine Company of North Adams, Mass., announce that they will themselves handle exclusively and sell direct all goods of their manufacture which have heretofore been sold by H. N. Bates & Co., Boston, throughout the New England and Middle States. These goods comprise the Hunter friction clutch pulleys and cut off couplings, as well as power transmission machinery of every description. Their Boston office is in charge of Richard H. Hill.

The Empire Portable Forge Company of Lansingburg, N. Y., have executed a mortgage for \$7000 on their real estate in favor of J. K. P. Pine of Troy, and have

also confessed judgment for \$7031.61 in favor of the People's Bank of Lansingburg. The company had an authorized capital of \$30,000, but their works have been closed of late.

Fire broke out in the foundry over the coke ovens of the Holly Mfg. Company, at Lockport, N. Y., January 13, and obtained great headway. Half of the roof and as much of the interior was destroyed. The greatest loss was that of valuable castings. A temporary roof was erected and work is being continued. The loss is fully covered by insurance.

The Dwight Slate Machine Company of Hartford, Conn., have just completed two machines capable of counting and binding in packs 500,000 postal cards in ten hours.

At the annual meeting of the Smith-Carleton Iron Company of Boston, Mass., manufacturers of builders' iron work, the following officers were re-elected: President, J. Arthur Jacobs; secretary and treasurer, Guy H. Carleton, and general superintendent, Bryant G. Smith. Directors: The above, and Wyman D. Willcutt and C. Everett Clark.

Orr & Semberow of Reading, Pa., manufacturers of plain slide valve engines and stationary boilers, are building a new foundry with a floor space of 60 x 172 feet, with wing 48 x 50 feet. The building will be of brick, with fire proof roof, and the pattern store house, 130 x 40 feet, two stories high, will also be fire proof.

The new foundry plant under process of construction for the F. A. Thomas Machine Company of Woonsocket, R. I., will consist of a main building, 50 x 100 feet in size, and two ells 20 x 30 and 50 x 15 feet, respectively. The three buildings cover an area of 6350 square feet, and are uniformly one story high.

The Walker & Pratt Mfg. Company, manufacturers of stoves and heating apparatus at Watertown, Mass., have started up their foundry after completing repairs. Almost the full complement of 200 men were given work.

At the annual meeting of the stockholders of the Eureka Wood Pulley Company of Berlin, Pa., Geo. F. Brubaker, formerly vice-president, was elected president, and Z. T. Kimmel secretary and treasurer. The company state that they are now prepared to furnish their pulleys with iron bushings as before, and also with a wood bushing, consisting of two hardwood blocks bored out in the center for shaft.

The Paxton & Vierling Iron Works of Omaha, Neb., have decided to build a new foundry building. The structure will be either four or five stories high, with a basement, and its dimensions will be 45 x 100 feet. It will be built entirely of brick, iron and steel, and its cost will exceed \$100,000.

At Boyertown, Pa., the citizens have organized the Union Mfg. Company of Boyertown for the purpose of establishing and conducting a foundry and machine business. The capital stock is \$50,000.

The court has ordered Receiver Thompson of the Sioux City, Iowa, Engine Works, to sell the plant at public auction on February 3. The property of the company is estimated to be worth \$120,000.

The Portland Foundry, at Portland, Maine, has started up with a force of 75 men.

Lambert Bros. & Co., operating a machine shop and foundry at Ironton, Ohio, have posted notice of a general reduction in wages of 20 per cent.

The Watts-Campbell Company, machine and engine manufacturers, at Newark, N. J., have started up their plant, after having been closed since December 23.

D. June & Co.'s foundry and engine works, at Fremont, Ohio, have started up after six months' idleness. Over 250 men are employed.

The Rome Foundry & Machine Works, at Rome, Ga., are preparing to resume business.

Hardware.

After being closed for two weeks, the Cattaraugus Cutlery Company, Little Valley, N. Y., resumed operations on the 8th inst., running eight hours per day. Fifty persons are employed.

The annual election of the John Good Cordage & Machine Company, New York, was held on the 18th inst., when the following officers were elected for the ensuing year: John Good, president; James D. Leary, vice-president; James J. Phelan, treasurer; James M. Rankin, secretary.

Messrs. Phelan and Rankin are new officers, but old members of the Board of Directors of the company.

The Coldwell Lawn Mower Company, Newburg, N. Y., report that they have more orders ahead than at the same period of 1893.

The annual meeting of the stockholders of the Swan Lamp Mfg. Company, Cleveland, Ohio, was held on the 16th inst. The following officers and directors were elected: Myron T. Herrick, president; S. M. Hamill, vice-president and general manager; B. F. Miles, treasurer; S. E. Cox, secretary and superintendent, and Myron T. Herrick, W. H. Lawrence, B. F. Miles, L. H. Rogers and S. M. Hamill, directors.

The plant of the Halifax Shovel Company, Halifax, N. S., was almost totally destroyed by fire on the 10th inst. All the machinery except one drilling machine was destroyed or rendered useless, and the only portion of the stock saved was a number of completed shovels. The building was a two-story one and was valued at about \$2000. The machinery was of the latest type and was valued at about \$12,000. There was considerable stock on hand and the loss on made and unmade material is fixed at about \$8000. This makes the total loss about \$22,000. To offset this an insurance of about \$10,000 was carried.

The Fordyce Nut Lock Company, Little Rock, Ark., have been incorporated. The incorporators are P. J. Conley, Edward E. Poole, Algernon S. Holderness, John D. Dunn and William Alexander. Mr. Conley is president of the company. The capital stock is \$100,000, of which \$10,000 has been paid in.

The F. & N. Lawn Mower Company, Richmond, Ind., have increased their force and are now running to their full capacity.

The Wilcox Silver Plate Company, Meriden, Conn., have received an order from the United States Navy for \$9680 worth of goods, which will be used in fitting up nine of the warships.

The employees of the T. C. Richards Hardware Company, Winsted, Conn., were on the 15th inst. notified of a reduction of 15 per cent. in their wages. About 100 persons are affected.

The Southington Cutlery Company, Southington, Conn., resumed operations on the 15th inst. A cut in wages was made some time ago, on account of which the knifemen went on strike. By arbitration an agreement has been entered into whereby the company consent to reduce the cut in wages one-half, making the cut $7\frac{1}{2}$ per cent. instead of 15 per cent., as originally decided upon.

The factory of the Union Hardware Company, Union, N. Y., is operating on full time. Orders are running well and the future outlook is regarded as promising.

The plant of the Barbour Silver Plate Company, Hartford, Conn., resumed operations last week.

The Waltham Emery Wheel Company, Waltham, Mass., have notified their employees of a reduction of 10 to 15 per cent. in wages.

The Cutaway Harrow Company, Higanum, Conn., recently shipped 20 carloads of harrows to the West in a single day.

Schaw, Ingram, Batchelor & Co., Hardware merchants, of Sacramento, Cal., have just completed a building 42 x 100 feet, which they have equipped with the latest machinery for the manufacture of sheet iron and steel pipe for mining, irrigating and power purposes.

The Cleveland Twist Drill Company, Cleveland, Ohio, are running with nearly their full complement of men eight hours a day, and hope soon to be running the usual ten hours. They refer to the outlook for business as being brighter than at any time during the past six months.

The Springfield Brass Company, Springfield, Mass., advise us that business with them for the past five or six months has been very good, and latterly they have been running their shop up to 10 o'clock every night in an endeavor to catch up with their orders.

The Spicer Mfg. Company, New Philadelphia, Ohio, report making a shipment of their sheet metal trucks to Cambridge, Ohio, for the Cambridge Iron & Steel Company.

The Keyless Lock Company, 197 South Canal Street, Chicago, manufacturers of the Craig locks, report a large sale of locks to the Chicago Board of Education which will place about 1500 of their com-

bination locks in use in the public schools of Chicago. Several other large contracts are also in their hands.

The Salem Lock Company, Salem, Ohio, manufacturers of cylindrical door locks and hardware specialties, made an assignment last week. We are officially advised that the assets of the concern are \$57,000 and the liabilities only \$15,000. It is probable that arrangements will be made with the creditors by which the works will be continued in operation.

The Allentown Hardware Works, Allentown, Pa., manufacturers of locks, knobs and general builders' hardware, resumed operations on Monday, the 15th inst., with 50 employees at a reduction in wages varying from 10 per cent. to 20 per cent.

The Arcade File Works of Anderson, Ind., have just added to their equipment two new machines of their own design for making single cut files. It is stated that these two machines will increase the capacity of the works for producing these particular files about 80 dozen per week. Their Eastern office is at 83 Reade street, New York, and Western office at 23 Lake street, Chicago.

The Albany, N. Y., Horse Nail Company have elected as directors C. P. Williams, C. P. Williams, Jr., D. F. Williams, N. J. Husey, W. B. Page, Charles M. Page, James H. Manning, Henry L. Smith, Silas Sporborg, Jacob S. Friedman and T. J. Sullivan.

The works of the Walter A. Wood Mowing & Reaping Machine Company, Hoosick Falls, N. Y., are now running to their full capacity.

The Tennessee Coal, Iron & Railroad Company have made new ore contracts, which are equivalent to a saving of 22½ cents on the cost of pig iron.

C. B. Holland, who has been connected with some of the largest English works, among them Ebbwvale and Bolckow Vaughn & Co., is general manager. T. Jopling who has so long been conspicuous in the Otis management, is very seriously ill.

John Fritz of Bethlehem has so far recovered that he visited New York last week.

W. M. C. Jones, employed in the drafting department at the Edgar Thomson Steel Works, Bessemer, Pa., has resigned his position.

Luther A. Roby has severed his connection with the Otis Works, at Cleveland, George Bartol being his successor.

George H. Ely of Cleveland, for many years an ardent advocate of the iron ore and shipping interests of the Lakes, died suddenly yesterday.

M. M. Garland, president of the Amalgamated Association, went to Belleville, Ill., last week, to settle the new steel scale. It is expected that his labors will be confined to Western territory until about the 25th, when he will return to Pittsburgh.

The rolling mill hands and tin plate workers have taken steps toward organization at Gas City, Ind., the location of the large Morewood plant.

William F. Jarvis & Co. of Detroit have been appointed sales agents for the Peninsular Iron Company of Detroit, which will allow them to furnish iron from this furnace from Detroit in place of the old D. I. F. and Eureka brands, both of which furnaces are out of blast indefinitely, which they were agents for. Their agencies for their other regular brands of Lake Superior Charcoal from the Upper Peninsula remain as before.

The Iron and Metal Trades.

Reports from the leading producing and distributing centers confirm the impression, first observed last week, that there has been a distinct improvement in the demand. But it must be frankly acknowledged that the larger volume of business has been at the sacrifice of values, which have further receded, although it was thought impossible that lower prices could be reached.

The argument that crude and finished Steel could not be sold at a lower range has become so threadbare that it takes courage to repeat it. Honestly and earnestly affirmed in the past, it has been belied by the course of events. And yet it is certain that \$10.50 for Bessemer Pig at Pittsburgh and less than \$15.50 for Billets are rock bottom as to cost. The indications are that buyers, so often disappointed last year, are sharing that conviction and are taking hold in some branches.

In ordinary grades of Pig Iron the Southern furnaces have surrendered and are selling at lower prices, \$6.75 at Birmingham representing the basis for Gray Forge. Recent contracts in the East for Cast Iron Pipe have been taken by Northern shops, but considerable inquiries for additional quantities are in the market, among others from suburbs of Boston, Syracuse, Albany and Yonkers. It is figured that between 30,000 and 40,000 tons are coming up.

In Soft Steel Pittsburgh has got down squarely to \$15.50, at which quite a number of sales have taken place, while brokers are reported to be offering stock at considerably less. The Eastern mills are following the market down.

In finished material the Wire trade is developing more activity. This has led to the buying of Wire Rods at about \$23, Western works, and the placing of contracts for Billets. From different towns come reports of considerable structural work in sight. Thus New York architects have completed or have on hand a number of large buildings which will call for about 10,000 tons of material. Chicago has considerable elevated work coming up. For shed work an exceedingly low price has recently been named in New York.

In the Plate trade Pittsburgh has again been victorious in the fight for the material for the Chicago boat. It may be stated also that the local mill ultimately lost the order for the Cleveland vessel, Pittsburgh taking it. The order for about 1000 tons of No. 7 Plates for Portland, Ore., has not been placed.

Extraordinary figures have cropped up lately on Beams, Bars, Hoops and Plates, but it is apparently too often forgotten that the low price for Soft Steel and the heavy reductions in wages warrant a heavy drop in prices.

Thus far the improvement in the demand seems to have come from the general trade. The requirements originating with the railroads, the greatest customers of the Iron trade, are still amazingly small.

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, January 24, 1894.

The local market has been considerably more active during the past week. Several very large contracts have either been closed or negotiations are pending which will bring the sales of material up to a much larger volume than for a long time. The transactions, however, may be regarded as of a special nature and do not indicate a wide improvement in the condition of the Iron trade. The average buyer is still purchasing small quantities and only as he needs the material. Some signs of encouragement are reported for the building trades in the increasing number of contracts now issuing from architects' offices. The outlook is favorable for a great deal of building this spring, which must have a beneficial effect on numerous branches of business.

Pig Iron.—Sellers of local Coke report an excellent trade in carload lots but very little doing in larger quantities. Southern Iron is also moving in small lots only and consumers are not disposed to contract ahead. It is a noticeable feature that some large consumers are buying two and three times a week rather than take in a month's supply. Prices continue to show a drooping tendency. Competition for business is, if anything, more keen than it has been, and wherever Northern and Southern Irons come in contact the price named on the former is such as to take the business. Southern Soft Irons, however, continue to receive the favor of buyers, but even on these very low prices are made on lots of 200 to 300 tons. Lake Superior Charcoal is moving in a small way, and on carload lots a much better price is obtained than if buyers were making large contracts. Transactions of this kind are reported somewhat above our quotations. Quotations are now as follows for cash:

Lake Superior Charcoal.....	\$15.30 @	\$15.50
Local Coke Foundry, No. 1....	13.00 @	13.50
Local Coke Foundry, No. 2....	12.50 @	12.75
Local Coke Foundry, No. 3....	12.00 @	12.50
Local Scotch.....	13.50 @	14.00
Ohio Strong Softeners No. 1....	15.00 @	15.50
Southern Silvery, No. 1.....	..... @	13.75
Southern Silvery, No. 2.....	..... @	13.25
Southern Coke, No. 2.....	11.65 @	11.90
Southern Coke, No. 3.....	11.40 @	11.65
Southern, No. 1, Soft.....	11.65 @	11.90
Southern, No. 2, Soft.....	11.40 @	11.65
Tennessee Charcoal, No. 1....	16.00 @	16.50
Tennessee Charcoal, No. 2....	..... @	15.00
Southern Gray Forge.....	10.60 @	10.85
Alabama Car Wheel.....	18.00 @	18.50
Jackson County Silvery.....	16.00 @	16.50
Other Ohio Silvery.....	15.00 @	15.50

Bars.—Manufacturers almost invariably report light business. Here and there prospects are favorable for transactions of considerable size, but negotiations are protracted. The concerns having season contracts are not favored with specifications as they would like, especially whenever these contracts were made at the comparatively high prices of last summer. The suspicion naturally prevails that such consumers are supplying a considerable part of their requirements elsewhere at much lower rates than their contracts call for. Some of the Valley manufacturers are now naming as low prices as any of the local mills. The competition of the manufacturers making Steel exclusively continues as sharp as before. Prices on mill shipments range from 1.25¢ to 1.35¢, Chicago, for either Iron or Soft Steel, with half Iron extras; but some shading is done on good specifications. Prices from stock continue at 1.50¢ @ 1.60¢, according to quantity and quality.

Structural Material.—A 4-mile extension of the Lake Street Elevated Railroad is about being closed, but the general belief is that it will be secured by the Pencoyd Iron Works, whose relations with the road have been very close. More elevated contracts are expected to be in the market very shortly. The demand for Beams and Bridge Material generally is light. Quotations are as follows, Chicago delivery: Beams, 1.55¢ @ 1.60¢; Tees, 1.85¢ @ 2¢; Angles and Universal Plates, 1.50¢ @ 1.60¢. Small lots are sold from stock at an advance of about 15¢ @ 100 above these prices.

Plates.—Chicago Ship Building Company placed the large contract for Plates mentioned last week with a Pittsburgh manufacturer. The price made was very low, as was to be expected. The Angles and Beams were placed with the Illinois Steel Company, except such forms as they do not roll, which went to Pittsburgh also. The general demand for Plates has been quiet. Mill shipments, Chicago delivery, are quoted as follows: Tank Steel, 1.50¢ @ 1.60¢; Flange Steel, 1.90¢ @ 2¢; Fire Box, 2.75¢ @ 5¢. Store prices are as follows: Iron or Steel Sheets, Nos. 10 to 14, 2¢ @ 2.10¢; Tank Steel, 1.90¢ @ 2¢; Flange Steel, 2.40¢ @ 2.65¢; Boiler Tubes, 70 and 5 % off. An annoying error was made last week by printing the word "Sheet" for "Shell" in the last sentence under Plates.

Sheets.—Some business in Black Sheets has been closed during the past week, which considerably relieves the stagnation hitherto prevailing in this line, but the result is that prices are reduced to a lower plane. The open quotation on mill shipments of No. 27 Common is now 2.60¢ @ 2.65¢, Chicago. Small lots from stock are selling at 2.80¢ @ 2.90¢. Galvanized Iron continues in fair demand. Manufacturers are quoting mill shipments of Juniata Galvanized at 75 and 10 %, while small lots from stock range from 70 % to 70 and 10 %. Sheet Copper is unchanged at 30 % @ 35 % off, according to quantity.

Merchant Steel.—The Implement trade being busy at this time their specifications are coming forward freely. The volume of business in this branch runs about the same as two years ago, having fallen from the maximum attained last year. New business the past week has been fair, embracing some good lots of specialties. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery, Tire and Open Hearth Spring Steel, 1.85¢ @ 1.95¢; Ordinary Bessemer Machinery, 1.55¢ @ 1.65¢; Bessemer Tire, 1.50¢ @ 1.60¢; Ordinary Tool Steel, 6¢ @ 7¢; Specials, 12¢ and upward.

Billets.—So far as can be learned no transactions in Billets have taken place in this locality since our last report. Nominal quotations are continued at \$18 @ \$18.25 Joliet.

Rails and Track Supplies.—Contracts for Steel Rails are slow to take shape and some large Western roads have not yet made known what their requirements will be for the year. The Illinois Steel Company hope to be able to start their mill in February or toward March 1, but there is no certainty about it. Prices continue firm at \$25 @ \$27, according to quantity. Quite large transactions are reported in Splice Bars and the price in a general way is about 1.40¢. When more favorable rates are obtained they are due to

special circumstances. Track Bolts with Hexagon Nuts are unchanged at 2.50¢ @ 2.55¢; Spikes, 1.90¢ @ 1.95¢.

Old Rails and Car Wheels.—A sale of a round lot of Old Iron Rails is reported at under \$10.50 on the line of a road not in this immediate vicinity. Prices here would seem to run from \$12 to \$13, according to the views of the railroads having stock to sell. Old Steel Rails are quoted at \$7 @ \$7.25 for short pieces, with very little doing. Selected lengths are commanding in the vicinity of \$12 @ \$12.50. Long lengths, unselected, are nominally quoted at \$10. Old Car Wheels are extremely quiet, with nominal values \$10 @ \$11 in a speculative way.

Scrap.—The market is in such condition that it is very difficult to make quotations. Dealers are naming prices at which they desire to sell, but consumers make offers much lower and claim to be still able to buy for railroads at very low rates. Old Splice Bars have been sold at \$10 @ net ton.

Metals.—Lake Copper is weaker and carload lots are now quoted at 10½¢. Casting Copper is also slightly lower at 9½¢. Spelter stands at 3.30¢ and is very quiet. A little more inquiry is reported for Pig Lead and the price is reported to be 3.10¢, but there have been few sales.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., January 23, 1894.

For the first time since last summer, we feel warranted in saying that the outlook is more encouraging. Prices are no better, the volume of business is not materially heavier, but with singular unanimity the trade are convinced that the turn in that direction is not far distant. There are many reasons for that belief, and few, if any, can be advanced to the contrary. 1. We have an extraordinary low basis of prices to begin on. 2. There has been such a general cleaning up of odds and ends that there is very little stock in second hands. 3. There never was a period in the history of the country when money was in such large supply.

None of these are sufficient in themselves to cause an immediate revival, but they are indispensable adjuncts, and as other conditions seem to be favorable, it is probably only a question of a few weeks' time when business will have assumed its normal proportions.

Pig Iron—The volume of business has been heavier than for some time past, and from the number of applications for prices it is probable that the next two or three weeks will show something still heavier. Nothing favorable can be said in regard to prices, but if the demand keeps up as expected prices will take care of themselves. The demand in the meanwhile is for consumption pure and simple; buyers are not taking Iron because it is cheap, but because they need it, which is vastly better for the market than buying to hold for a rise. It is still an open question how far the demand will extend, and bearing in mind that stocks are 60,000 tons heavier than they were a year ago, it is by no means certain that it will affect prices to any appreciable extent, but of course that will depend on how much Iron is taken during the next 30 or 60 days. Meanwhile it is thought that consumption is not more than 60 per cent. of what it was a year ago, so in that respect there is plenty of room for improvement,

even if there is no change in prices. The only safe position to assume is that business is very likely to improve, and it may improve very rapidly, but until it takes definite shape it will be well to follow the old plan of taking such lots as are required from time to time, leaving the future to take care of itself. Two or three large lots that are to be closed this week are expected to be at the lowest figures yet recorded, not that the market is in any worse condition, but because this is almost the first opportunity that holders have had for unloading good sized lots, and they are not likely to miss their opportunity for 25¢ @ 50¢ @ ton. General quotations for city or nearby deliveries are about as follows:

No. 1 Foundry	\$13.75 @	\$14.25
No. 2 Foundry	13.00 @	13.25
Standard Gray Forge	11.50 @	12.00
Ordinary Gray Forge	11.00 @	11.25

Steel Billets—There is more business doing, but prices are still weak and drooping. Sales have mostly been on the basis of about \$18.25, delivered, but on 1000 ton lots and upward \$18 to \$17.75 or less could be done for prompt specifications and settlements. Prices must be at bottom, or very near to it, but consumers still show a conservative disposition and are unwilling to buy more than to cover requirements for the next 30 to 60 days.

Finished Material.—The market is said to be improving, but it is hard to see where the improvement comes in. Prices are too much demoralized to be quoted on good sized lots, everything being in accordance with what a buyer may want. That is to say, a small order for strictly first-class material will be taken at ordinary quotations, but on a large lot prices are made by each competitor for the order at a lower figure than they imagine any one else will be likely to quote. Thus we hear of 1.3¢, delivered, for Light Plates, 1.25¢ for Steel Bars, 1.35¢ for Iron Bars, with Angles and Beams at similarly unheard-of prices, the idea being to secure the business regardless of cost. Nevertheless there is an impression that these methods have about served their purpose, and that things will gradually work back to normal conditions. There is certainly more business around, and those who have favored the small trade are getting a good deal of work and comparatively satisfactory prices. Prospects for its continuance are also very favorable, and we are inclined to think that with an increasing volume of business the low figures we have mentioned will soon be relegated to the rear. At the moment, however, prices are at the lowest yet quoted, but if the demand turns out as expected a reaction ought to be developed before long. Nominal quotations are about as follows:

Grooved Skelp, delivered.....	1.40¢ @	1.45¢
Best Refined Bars.....	1.40¢ @	1.45¢
At interior points.....	1.25¢ @	1.30¢
Tank Steel.....	1.45¢ @	1.55¢
Heavy Plates.....	1.50¢ @	1.60¢
Shell.....	1.60¢ @	1.75¢
Flange.....	1.90¢ @	2.00¢
Angles.....	1.60¢ @	1.70¢
Beams and Channels.....	1.65¢ @	1.80¢

Old Material.—The supply is so liberal that holders find it impossible to obtain better prices, although the demand is somewhat better than it has been. General asking prices are about as follows:

Heavy Melting Steel.....	\$10.50 @	\$11.50
Light Melting Steel.....	8.00 @	9.00
No. 1 Wrought Scrap.....	11.50 @	12.00
Machinery Cast.....	9.50 @	10.50
Wrought Turnings.....	9.50 @	10.00
Cast Borings.....	6.50 @	7.00
Old Iron Rails.....	12.00 @	13.50

C. R. Baird & Co. have opened an office in the Bullitt Building for the sale of all kinds of Pig Iron. Mr. Baird is well known to the trade, having been a member of the firm of Chamberlain, Turney & Baird, which was dissolved on January 1.

Arthur W. Howe, 615 Drexel Building, has been appointed agent for Philadelphia and vicinity of the Ohio Iron & Steel Company of Lowellville, manufacturers of the "Mary" Ohio Scotch Foundry Iron.

St. Louis.

(By Telegraph.)

Office of The Iron Age,
Bank of Commerce Building,
St. Louis, January 24, 1894.

Pig Iron.—There seems to be a slight improvement in the demand, but prices still continue on the low basis heretofore quoted. Local consumers of Iron are running more steady, and as they have but little stock on hand will shortly be in the market. There are a number of good sized contracts in negotiation which will doubtless be closed before the week is out. With these contracts price seems to be the prime factor and quality is occupying a secondary position. We quote as follows for cash, f.o.b. cars St. Louis:

Southern Coke, No. 1 Foundry	dry	\$12.00 @ \$12.25
Southern Coke, No. 2 Foundry	dry	11.25 @ 11.50
Southern Coke, No. 3 Foundry	dry	10.50 @ 10.75
Southern Gray Forge		10.00 @ 11.25
Southern Car Wheel		17.00 @ 18.00
Lake Superior Car Wheel		16.50 @ 17.00
Ohio Softeners		17.75 @ 18.25

Bar Iron.—A slight improvement in the demand is reported by mills and jobbers. The low prices referred to in our last report continue to be quoted, and 1.25¢ is now the accepted bottom price beyond which mills refuse to go. Jobbers ask 1.60¢ @ 1.65¢, according to quantity.

Barb Wire.—The improvement noted last week continues, and there is more or less talk of advancing prices. It is pretty generally agreed that Painted Wire at \$1.85 is so close to cost that mills had better close down than continue at this price. With this idea in mind a meeting has been called in New York this week of the representatives of the larger mills, with the purpose of coming to an agreement regarding prices. At the meeting held in Chicago last week a committee was appointed to visit the Eastern mills and report at the meeting in New York above referred to. At this writing the matter looks favorable, but contingencies are likely to arise which will prevent the agreement. Prices are firmer, and \$1.90 @ \$1.95 is now quoted for Painted, with Galvanized 40¢ per cwt. additional.

Wire Nails.—The improvement noted in Barb Wire seems to have had a beneficial effect on Wire Nails. The low prices prevailing have been withdrawn, and while they can hardly be said to have advanced, yet mills are not so persistent in quoting prices below the average market. Local mills quote \$1.25 @ \$1.30 for carload lots, with the possibility of still higher prices in the near future.

Rails and Track Supplies.—The conditions remain practically unchanged. We quote Splice Bars, 1.55¢ @ 1.60¢; Spikes, 1.85¢ @ 1.90¢; Bolts, Square Nuts, 2.35¢; with Hexagon Nuts, 2.45¢; Links and Pins, 1.80¢

@ 1.85¢. Old Iron Rails are quoted at \$13. Steel Rails are quoted at \$26 @ \$27, according to quantity.

Pig Lead.—The market remains on the 3¢ basis, at which price, however, very little business is being transacted. Stocks of Lead are heavy, and at the moment the market looks weak.

Spelter.—Even at the low price at present prevailing—3.27½¢—consumers are not placing their orders, evidently anticipating a still further decline in the price above quoted. It would probably be shaded if the order was a desirable one.

Pittsburgh.

(By Mail.)

Office of The Iron Age, Hamilton Building,
PITTSBURGH, January 23, 1894.

The volume of business is undoubtedly showing gains, particularly in the Wire trade, and in this branch prices have commenced to harden a little. In Pig Iron and Steel there are more inquiries and, while there has been considerable business placed this month, the gain in this direction has been largely at the further sacrifice of prices. There seems to be little hope for any improvement in prices in either raw or finished material until there has been a return to normal consumption, or until those who have been pursuing such an aggressive campaign for trade in the markets of the country have succeeded in getting their order books in comfortable condition. In the columns of a trade paper published in this city there appeared last week an editorial stating that the present low prices ruling for Iron and Steel products were not brought about by the Carnegie firm, but that other concerns have been the aggressors in this respect and are therefore responsible for the existing demoralization in values. Manufacturers both East and West who may chance to see the article, and who during the last six months or so have seen order after order slipping through their fingers because they would not meet prices made by Pittsburgh, will hardly accept this statement as being absolutely correct. Other evidence will have to be adduced before the trade will acknowledge that the present low prices of Iron and Steel have been largely brought about by legitimate competition, and not by the vigorous policy of the Carnegie firm, which Mr. Carnegie recently officially confirmed in an interview with a representative of the press. On the other hand, we believe that the trade is prepared to accept as true the statement in the editorial referred to, that other concerns are at an equal advantage with the Carnegie firm when costs on certain products are compared. This is shown by the fact that right in Pittsburgh are concerns who have been able to operate their plants to moderate capacity right along, and at the same time have not found it necessary to adopt "the policy of taking every order to be had, East, West, North or South, regardless of prices."

Pig Iron.—The market shows no material change, either as regards demand or prices, with the exception that prices hinted at last week are openly quoted this week. In our report of last week it was stated that Bessemer Iron had been offered as low as \$10.50, Pittsburgh. This has since become an open price, a sale of 100 tons having been made at that figure, delivered at buyer's mill. The efforts to maintain city made Forge

Iron on a \$10 basis have also been unsuccessful, and that price is being shaded 25¢ and perhaps more. The demand for Bessemer is looking up a little, and with the slightly improved condition of trade it is thought that still further improvement in demand will soon come. The sale of Southern Forge Iron made in this market last week, concerning which so much has been said, turns out to be a few hundred tons of off grade that netted the furnace about \$6 ¾ ton. We quote as follows:

Neutral Gray Forge	.....	\$9.75 cash.
All-Ore Mill	.....	10.00 @ 10.25 "
No. 1 Foundry	.....	11.75 @ 12.00 "
No. 2 Foundry	.....	11.25 @ 11.50 "
Bessemer	.....	10.50 @ 10.75 "

We note a sale of 1000 tons of Bessemer for February delivery at \$10.50, Pittsburgh; also 500 tons of Gray Forge for same delivery at \$9.75, delivered.

Billets.—While inquiries for Steel are more numerous, actual business being closed seems to be largely at the expense of lower prices. Before Billets had touched \$16, Pittsburgh, but were tending in that direction, it was the impression that if \$16 was finally reached that price could be accepted as the bottom of the market. Early this month Billets touched \$16, but have since shaded that price very materially when attractive business was offered. Any improvement in this direction cannot be expected while the reckless competition of the past few months lasts. The Wheeling mills have practically retired from the field and have set their minimum at \$16.50, below which figure they will not sell, but will remain idle in preference. In the present condition of the market it is impossible to give quotations that would be correct. Prices depend altogether on the tonnage offered and the terms of payment. We note a sale of 1000 tons, equal deliveries in February and March, at \$16 at maker's mill. Several concerns here have refused so far to accept business at less than the above figure.

Ferromanganese.—We continue to quote at \$52, delivered, for 80 % domestic. Demand is very light.

Plates.—In addition to the contracts referred to last week several others are in the market, one of these being for considerable tonnage for Youngstown delivery. Business is picking up in volume, but prices are no better, buyers dictating their own terms in many cases. In such a condition only nominal quotations can be given, the size of the order and the terms fixing the actual price. We make nominal quotations as follows: Tank Steel, 1.25¢ @ 1.35¢; Shell, 1.40¢ @ 1.50¢; Flange, 1.50¢ @ 1.65¢; Ordinary Fire Box, 1.75¢ @ 1.85¢; Railroad Fire Box, 2¢ @ 2.15¢.

Structural Material.—While the amount of business being placed just now is not large, the outlook for early improvement in demand is very bright. This is expected to be the banner year as far as consumption of Beams and Channels is concerned. The size of the order continues to determine the price, and in some recent cases it would seem that lower prices were made than were actually necessary. We make nominal quotations as follows: Beams and Channels up to 15 inches, 1.35¢ @ 1.40¢; Angles and Universal Plates, 1.35¢ @ 1.45¢; Tees, 1.60¢ @ 1.75¢.

Muck Bars.—There is nothing doing, and we make nominal quotations of \$20 @ \$20.25, delivered at buyer's mill, for best grades.

Bar Iron.—Buyers continue to confine their purchases wholly to lots for

immediate requirements, and when a fair sized order is placed prices are shaved down until it seems that there is no bottom to the market. A fairly large order for Common Iron Bars was recently placed at 1.15¢ delivered, with a 7-cent freight rate. Prices are somewhat weaker, and we now quote Soft Steel Bars at 1.20¢ @ 1.25¢, with Bar Iron extras, and even these low prices are occasionally shaded. In the Valley, Iron Bars are quoted at 1.15¢ @ 1.25¢, according to order. These prices are also subject to shading for desirable specifications.

Merchant Steel.—The market continues quiet, with prices ruling about as follows: Bessemer Machinery, 1.45¢ @ 1.50¢; Open Hearth Machinery, 1.70¢ @ 1.75¢; Machine Straightened Tire, 1.60¢; Sleigh Shoe, 1.75¢ @ 1.85¢; Toe Calk, 1.90¢ @ 2¢; Open Hearth Spring, 1.85¢ @ 1.90¢; Tool Steel, 5½¢ and upward.

Pipes and Tubes.—There is no improvement in this trade, either in demand or prices. The plant of the Duquesne Tube Works Company is entirely closed and will probably remain idle until trade improves. At the plant of the National Tube Works Company a lower wage scale has been made and operations have been resumed, though not to full capacity.

Skelp Iron and Steel.—There is only a fair demand, inquiries for Steel Skelp being more numerous than for Iron. We quote as follows: Grooved Steel Skelp, 1¢ @ 1.10¢; Sheared, 1.10¢ @ 1.20¢; Grooved Iron Skelp, 1.20¢ @ 1.25¢; Sheared, 1.35¢ @ 1.40¢.

Wire Rods.—The heavy demand for Wire Nails and Barb Wire has toned up the Rod market to considerable extent and very few are being offered. Of the concerns in this district two are using their entire output, while the third is sold up for several months. We quote at \$23.50, and it is doubtful if that price would be shaded for close delivery.

Barb Wire.—The mild winter thus far has permitted farmers and other consumers of Wire to do outside work, and this fact, coupled with the low prices ruling for some time, has stimulated demand to considerable extent, and prices are also firmer. We quote Four Point Galvanized Wire at \$2.10 in carload lots and \$2.15 in less quantities. Painted Wire is also in active demand, and may be quoted at \$1.70 in carload lots and \$1.75 in less quantities. The Barb Wire department and also the Wire Nail department of the Backus Wire Nail Company, Cleveland, Ohio, are being operated double turn, with a large amount of business booked for future delivery.

Wire Nails.—The Wire Nail market is active, the demand at this time being unusually heavy. As a consequence prices have toned up considerably and the market may be fairly quoted at \$1.05 in 1000-keg lots, and \$1.10 in carload lots at mill. A slight improvement in demand in Cut Nails is also reported, and the outlook for a larger business is encouraging. We quote Cut Nails at 95¢ at mill for the usual averages.

Connellsville Coke.—The Coke trade shows no improvement in demand, and prices continue very much demoralized. While the new scale of the H. C. Frick Coke Company, which goes into effect on February 1, has not been made public, it is stated that it is based on \$1.15 as the minimum price for Coke in tons of 2000 lb at oven, and \$2 as the maximum price. Under the terms of

the scale, mining advances 3¢ per 100 bushels for every 10¢ advance in price of Coke. Drawing advances 1½¢ for every 10¢ advance in Coke, this ratio obtaining all through the scale. As stated above, the new scale goes into effect on February 1 next, and is in force until January 1, 1895, and can only be changed on 30 days' notice from either side. In case no notice is given by either side of a desire to change the terms of the scale prior to January 1, 1895, it shall then continue in force until January 1, 1896. The percentage of active and idle ovens in the Connellsville region is about the same as noted in our last report. The price of Furnace Coke continues to range from 90¢ to \$1 per ton, but it is not probable that contracts would be accepted at first named figure. Selected 72-hour Foundry Coke is held at \$1 to dealers, and \$1.15 to consumers. Offers have been made to take six months' contracts based on this price. Crushed Coke, all sizes, is held at \$1.40 to consumers.

W. Stewart Horner, formerly with O. M. Hartzell & Co, Iron and Steel brokers, of this city, has severed his connection with that firm, and has associated himself with H. P. Goff, the style of the firm being Goff & Horner, who will carry on a general brokerage business in Iron and Steel, with headquarters in the Lewis Block, Pittsburgh, Pa.

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fifth and Main Sts., CINCINNATI, January 24, 1894.

There is no improvement in the tone of the Pig Iron market; on the contrary it is evident that no large sales of Southern Iron could be effected without making concessions, which would doubtless be done if there was shown to be any disposition to buy in a large way at lower prices. The jobbing foundries in this district have generally completed their contracts for the finished product, and will not buy the raw material until they have use for it. And so there is little more than single car lots selling to them, but from other parts of the country there are occasional orders, but none of them are large and it is doubtful if the aggregate sales of Pig Iron for the week reached 5000 tons. Consumers in November contracted for more Iron than they required and are now taking it on old contracts and probably will continue to do so, so that there is more melting of Pig Iron than there is selling, and yet if it was all purchased now it would not amount to a satisfactory volume of business, and yet there are some indications that there will be an increase in the demand for many articles in the not far distant future. Quotations are merely nominal, as follows:

Foundry.

Southern Coke, No. 1.....	\$11.75 @	\$12.00
Southern Coke, No. 2.....	10.75 @	11.00
Southern Coke, No. 3.....	10.25 @	10.50
Ohio Soft Stone Coal, No. 1.....	15.50 @	16.00
Ohio Soft Stone Coal, No. 2.....	14.50 @	14.75
Lake Superior Coke, No. 1.....	15.00 @	15.25
Lake Superior Coke, No. 2.....	14.00 @	14.25
Hanging Rock Charcoal, No. 1.....	18.50 @	19.00
Hanging Rock Charcoal, No. 2.....	17.50 @	18.00
Tennessee Charcoal, No. 1.....	14.00 @	14.25
Tennessee Charcoal, No. 2.....	13.00 @	13.25

Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	17.75 @	18.00
Lake Superior Car Wheel and Malleable.....	17.00 @	17.25

Forge.

Gray Forge.....	9.75 @	10.00
Mottled Coke.....	9.50 @	9.75

Metal Market.

Pig Tin.—The distinctively new features in the market for this metal are that prices have averaged lower, and that a few hundred tons of "duty paid" Tin have been placed upon the market by dealers who would not buy from the leading holders of Tin imported prior to the date that the McKinley duty went into effect. That there was a financial loss in selling duty paid Tin on the basis of current quotations is obvious, but that little circumstance seemed to have been greatly personal, or sentimental, and has had no direct bearing upon the market. In any event evidence is wanting that either jobbers or consumers have deviated in the slightest degree from their former policy of buying in a conservative way, and the speculative interest has not enlivened affairs perceptibly. Speculation, in fact, seems to have been aimed chiefly at forcing prices to the lowest possible point or endeavoring to discover "rock bottom." Spot and current month delivery has been offered freely at 20¢, and March delivery at a shade less. June delivery was offered at 19.90¢, July at 19.50¢, August at 19.25¢, September at 19¢, October at 18.75¢ and November at 18.50¢, on the Exchange. There was some question as the reliability of the quotations on distant futures, and suggestion also of unbusinesslike methods, but the fact was plain that spot stock in 10-ton lots found extremely limited sale, and circumstantial evidence went to show that spot stocks are in excess of the amount generally reported. The uncertainty in this connection, along with the erratic movement of London prices on a lower level, keeps the market in very uncertain form.

Copper.—There have been no really new developments. The demand is slower, if anything, than it was a week ago and sellers have refrained from doing anything that would afford a basis for suggestion of weakness in the market. The fact is demonstrated, however, that it is easier to buy than to sell Lake Superior Ingot at 10¢, and that other varieties of Copper are not in a more enviable position. Still there is the redeeming feature that Brass manufacturers are more busily engaged and that there has been some improvement latterly in the demand for their goods and that the market for several lines of manufactured Copper shows some improvement. A better price than 10¢ for round lots of Lake Superior Ingot is strictly the exception, however, where actual sales are involved, and other varieties are on about the same basis. Electrolytic may be secured at 9½¢ @ 9¾¢, according to brand and quantity, while 9¼¢ @ 9½¢ would seem to cover the extreme range on common casting stock, in wholesale quantities.

Pig Lead.—About 200 tons of common Western have been sold at 3.17½¢ delivered here, prompt and near future shipment. Nearly if not the entire quantity went to consumers. This class of buyers are not offering above 3.15¢ at the moment, and manifest extreme indifference. A few speculators bid 3.15¢ for single carload lots, but their offers seem to be nicely timed, as though intended for speculative effect. The fact cannot be disguised, however, that the market remains in poor condition.

Spelter.—There have been moderate sales of common Western at 3.50¢ and a few carloads on the spot were disposed of at 3.47½¢, if, indeed, not at a shade less. As far as actual business is

concerned, the market shows weak tone and there is nothing in the way of demand that tends to change the complexion of affairs in the least. In short, the market looks weak and is positively dull.

Antimony.—There is little doing outside of routine distribution, but prices remain quite steady at $9\frac{1}{2}\phi$ @ $9\frac{1}{2}\phi$ for Hallett's and $10\frac{1}{2}\phi$ @ $10\frac{1}{2}\phi$ for Cookson's, in wholesale lots.

Tin Plate.—No radical change has taken place in the character of the demand for any line of Plates for immediate or future delivery. The demand continues slower than usual at this season, despite the low level of prices that rule nearly all along the line, and the entire absence of speculative tendency. For spot goods the following prices are quoted: Coke Tins—Penlan grade, IC, 14 x 20, scarce; J. B. grade, do., $\$5.30$; Bessemer full weight, $\$5.25$; light weights, $\$4.85$ @ $\$4.90$ for 100 lb, $\$4.80$ for 95 lb, $\$4.60$ for 90 lb. Siemens Steel scarce. Stamping Plates—Bessemer Steel, Coke finish, IC basis, $\$5.45$; Siemens Steel, IC basis, $\$5.55$ @ $\$5.60$; IX basis, $\$6.60$. Charcoals—Melyn grade, IC, $\$6.35$; Crosses, $\$7.87\frac{1}{2}$; Allaway grade, IC, $\$5.55$; Crosses, $\$6.75$; Grange grade, IC, $\$5.65$; Crosses, $\$6.85$. Charcoal Ternes—Worcester, 14 x 20, scarce; do., 20 x 28, $\$11.35$; M. F., 14 x 20, $\$7.35$ @ $\$7.37\frac{1}{2}$; do., 20 x 28, $\$14.75$; Dean grade, 14 x 20, $\$5.35$; do., 20 x 28, $\$10.50$ @ $\$10.60$; D. R. D. grade, 14 x 20, $\$5.15$; do., 20 x 28, $\$10.10$; Alyn, 14 x 20, $\$5.35$; do., 20 x 28, $\$10.50$; Wasters—S. T. P. grade, 14 x 20, $\$4.75$; do., 20 x 28, $\$9$; Abercarne grade, 14 x 20, $\$4.60$; do., 20 x 28, $\$8.87\frac{1}{2}$.

Financial.

The event of the week in financial circles has been the Treasury offer of $\$50,000,000$ of 5% 10 year bonds, which has met with approval generally, as removing for the time, at least, any danger of a suspension of gold payments by the Treasury. The gold balance has fallen below $\$69,000,000$, and the revenue continues to decline several millions a month below that of last year. The fortification of the Treasury's cash balance by the new bond issue comes, therefore, as an encouraging factor, which has already imparted a stronger and more hopeful tone to the business of the country. The situation shows this week a sure though not as yet an extensive improvement.

The railroads are making a rather better showing, and traffic on the trunk lines is reported as heavy and exceeding that of last year at this season. Thus far the earnings reported for January are about 13 per cent. below those of last year, but leading railroad authorities believe that each week from now on will yield better comparative results, as their business is steadily improving.

Meanwhile the fact that money continues to pour in to the banks from the interior in increasing volume shows that confidence has not yet returned to the point of trade activity. Last Saturday's bank statement showed a large addition to the stock of idle money in the New York banks. The increase in cash during the week was $\$13,768,000$, while loans only expanded to the extent of $\$1,500,500$. The total gain in the reserve was $\$10,170,000$, which brings the surplus held by the banks over legal requirements to the largest sum ever recorded in the history of the banks, namely,

$\$102,754,450$. A large amount of this stock of money will doubtless be invested in the new Government loan, to which their probable subscription is estimated at from $\$25,000,000$ to $\$30,000,000$. The report of the New York and Brooklyn trust companies issued during the week shows these institutions to have held cash in hand on January 1, 1894, to the amount of $\$13,602,000$, and on deposit with other banks $\$58,280,000$. It is pointed out as a proof of the plethora of money at these business centers that the total cash held or deposited by all the State trust institutions of New York a year ago was less by $\$37,000,000$ than the aggregate above mentioned as held by those of these two cities.

The loan market is still depressed, and a very large amount of money is offering at low rates. Call loans rule generally at 1 per cent., although business has been done within the past few days at the entirely nominal rate of $\frac{1}{2}$ of 1 per cent. The banks and trust companies are not in the market, the offerings being generally from private sources. Time money is in excessive supply at 2 per cent. for 30 days, $2\frac{1}{2}$ per cent. for 60 days, 3 @ $3\frac{1}{2}$ per cent. for four and six months, and 4 per cent. for one year. Mercantile paper is in active demand, but inadequately supplied. Rates are quoted at $3\frac{1}{2}$ @ 4 per cent. for indorsed bills receivable, 4 @ $4\frac{1}{2}$ per cent. for best single names and 5 @ 6 per cent. for names not so well known.

The general bond market, which was fairly active last week, has lapsed into dullness in the early part of this week. Prices rule higher, however, and remain firm. There are indications that houses which make a specialty of investment business in the bond market are laying in a supply of good bonds in anticipation of an approaching large investment demand for these securities.

Sterling exchange has been firm but dull, with a limited supply of bills and a light demand. Actual business was done on Wednesday at $\$4.85$ @ $\$4.85\frac{1}{2}$ for sixty days, $\$4.87$ for demand, $\$4.87\frac{1}{2}$ for cables and 4.84 for commercial.

Domestic exchange on New York is quoted as follows: New Orleans, commercial 50 premium, bank 100 premium; Charleston, buying par, selling $\frac{1}{4}$ @ $\frac{1}{2}$ premium; San Francisco, sight 20, telegraph 25 premium; Savannah, buying par, selling $\frac{1}{4}$ premium; Chicago, par; St. Louis, 60 premium.

A sharp fall occurred in the silver market at the close of last week in consequence of the announcement that the Indian Government had decided to abandon the minimum rate of exchange instituted last summer. This announcement depressed the price of silver, which closed in London on Wednesday at $30\frac{1}{2}$ pence and in New York at $66\frac{1}{2}\phi$ an ounce.

New York.

Office of *The Iron Age*, 95-102 Reade street, }
New York, January 24, 1894. }

Pig Iron.—The market in this section is quiet, although the Southern producers are somewhat weaker. Consumers are still buying from hand to mouth and are not carrying any stock, and cases are frequent when extraordinary means must be adopted to hurry iron forward. Recent Cast Iron Pipe contracts have been taken by Eastern shops, R. D. Wood taking the Brockton 1800-ton order at $\$22.89$ delivered, while Emaus captured 1000 tons for Cambridge, Mass. We quote

standard brands, $\$13$ @ $\$14$ for No. 1; $\$12.50$ @ $\$13$ for No. 2; $\$11.75$ @ $\$12.50$ for Gray Forge, at tidewater. Southern Iron, same delivery, $\$13$ @ $\$13.50$ for No. 1; $\$12$ @ $\$13$ for No. 2; $\$11.50$ @ $\$12$ for No. 3; $\$11.25$ @ $\$12$ for No. 2 Soft, and $\$12$ @ $\$12.50$ for No. 1 Soft. Gray Forge is $\$10.75$ @ $\$11.25$.

Ferromanganese and Spiegeleisen.—Pittsburgh is offering Ferromanganese freely at $\$52$, tidewater, and even this price may be shaded. Foreign makers are adhering to $\pounds 9.10$ /Liverpool, which would allow of $\$54$ here, so that foreign is entirely out of the question. The exports of Ferromanganese to Europe have attracted attention there, and inquiries for round lots are now coming in from the Continent. American producers claim that they cannot do the business except at a loss. Spiegeleisen is lifeless at nominally $\$21.50$ @ $\$22$ for 10%, and $\$25$ @ $\$25.50$ for 20%.

Billets and Rods.—The story has been going the rounds for some time past that a lot of 1500 tons of Pittsburgh Steel Billets had been sold for export to France. A thorough investigation has failed to develop the slightest trace of any such shipment. An effort to meet American prices by foreign Basic Steel for the export Wire trade, on a moderate sized lot, was unsuccessful lately, $\$18$ on cars, ex duty, not being low enough. We quote $\$18.25$ @ $\$18.50$ for domestic Billets, and $\$26$ @ $\$26.50$ for domestic Wire Rods, tidewater.

Steel Rails.—It is stated on good authority that the 5000-ton Long Island order has not yet been placed. We note sales by an Eastern mill aggregating 2000 tons. The market is dull. Buyers seem to have little confidence in the market, and it is asserted that sellers are encouraging them to hold off for the present. The price continues to be $\$24.80$. Girder Rails have sold lately about $\$28$, a price which foreign makers could cut materially ex duty. Abroad Girder Rails are selling at about 5 to 10 shillings above price of standard Rails. It is understood in the trade that American mills generally sell on the basis of contracts containing a clause guaranteeing buyers against claims for damages for possible infringement of patents of rival works.

Track Material.—We quote as follows for small lots: Spikes, 1.70ϕ @ 1.90ϕ ; Fish Plates, 1.25ϕ @ 1.40ϕ ; Track Bolts, Square Nuts, 2.10ϕ @ 2.40ϕ , and Hexagon Nuts, 2.30ϕ @ 2.50ϕ , delivered. Concessions would be made for round lots.

Manufactured Iron and Steel.—There is more inquiry and a little more business is being placed in a small way. Prices, however, continue to be demoralized. Considerable Structural work will come up in this market. It is estimated that the extensions to the Equitable and New York Life, the Brandes, American Surety, Clearing House, Presbyterian and Hearn buildings will involve the placing of about 10,000 tons of material. The Starin dock shed has not been placed as yet. It is understood that a Pennsylvania mill has named an exceptionally low price. We quote nominally: Beams up to 15-inch, 1.55ϕ @ 1.75ϕ ; 20-inch, 1.75ϕ @ 2ϕ ; 24-inch, 2ϕ @ 2.25ϕ , for round lots; Angles, 1.55ϕ @ 1.70ϕ ; Universal Mill Plates, 1.50ϕ @ 1.65ϕ ; Tees, 1.70ϕ @ 2ϕ ; Channels, 1.60ϕ @ 2ϕ , on dock. Steel Plates are 1.40ϕ @ 1.55ϕ for Tank; 1.60ϕ @

1.65¢ for Shell; 1.75¢ @ 2¢ for Flange, and 2¢ @ 2.50¢ for Fire Box, on dock; Refined Bars are 1.40¢ @ 1.9¢, on dock, and Common 1.25¢ @ 1.50¢; Soft Steel Bars are 1.35¢ @ 1.50¢; Scrap Axles are quotable at 1.5¢ @ 1.75¢, delivered; Steel Axles, 1.5¢ @ 1.90¢, and Links and Pins, 1.5¢ @ 1.80¢; Steel Hoops, 1.50¢ @ 1.70¢, delivered; Cotton Ties, 70¢ @ 72½¢ @ 45-lb bundle, at mill; Machinery Steel, 1.45¢ @ 1.50¢; Toe Calk, 1.90¢ @ 2¢ and Sleigh Shoe, 1.65¢ @ 1.75¢, delivered.

Old Material.—The market is very dull, with Old Steel Rails at \$9 @ \$9.50 and the best quality of Old Iron Rails at \$12 @ \$12.25, on cars Jersey City.

Stock Warrants.—The American Pig Iron Storage Warrant Company report as follows:

	Tons.
Stock in yard December 31, 1893....	85,700
Put in yard for 18 days ending January 18, 1894.....	2,900
Total.....	88,600
Withdrawn 18 days ending January 18, 1894.....	1,900
Net stock in yard January 18, 1894..	87,200

Washington News.

(From our Special Correspondent.)

WASHINGTON, D. C., January 23, 1894.

The House in Committee of the Whole on the State of the Union having under consideration the bill to reduce taxation, to provide revenue for the Government and for other purposes, is now on the home stretch under the five minute rule. If no extraordinary obstructions of a parliamentary character intervene, by this day next week the tariff bill will have been passed in the House and will have reached the Senate.

The shape in which it will reach that body will be practically as reported from the committee, or with such slight amendments as have been approved by that authority.

The event of the past week has been the reassertion of the extraordinary proposition of Tom L. Johnson of Ohio and his speech in its support on January 18 "to strike steel rails out of the dutiable list and insert them in the free list, and the insertion of girder street rails in the same category. His allegation concerning a steel rail pool in the United States buying up other concerns to close their mills caused a sensation and was worked for all there was in it. Mr. Johnson then invited interrogation on the subject of putting steel rails on the free list. The result was a wide range of colloquy, mostly participated in by members entertaining the same views.

Representative Dalzell of Pennsylvania, on the spur of the moment, went back at the gentleman from Ohio with a more formidable supply of ammunition than he expected. He showed that the duty in the bill before the House was 25 per cent., and the same on billets and blooms, which might be regarded as the raw material of steel rails, and on the finished product no duty at all, which he said was absurd. He showed that in 1867 American consumers paid England \$166 a ton for steel rails. With a duty of \$28 a ton levied in 1872, \$17 in 1883 and \$13.40 in 1890 prices have steadily decreased, until American steel rails can now be purchased at \$24 a ton. Mr. Dalzell then went into the statistics of production with considerable detail, com-

paring wages paid in the United States and England in the coal mines, on the railroads, in the blast furnaces, converting mills and rail mills, and gave the comparative effect on prices of different manufactures of iron and steel, American and foreign, under the Wilson and McKinley tariff bills. He then entered into some detail to show the difference in the cost of manufacturing steel rails and steel billets, the former proposed to be free and the latter dutiable. He also exploded the pool charge.

The doughty Pennsylvanian then quoted the Ohioan's declaration that his steel rails were not protected by a single patent, and added: "I hold in my hand a statement, the authenticity of which I vouch for, showing the issue of 102 patents to the president of the Johnson Steel Rail Works, at Johnstown, Pa., taken out in the name of Arthur J. Moxham." The entire list was then entered in his remarks. The Pennsylvanian also took up the scrip question and exposed that.

The present arrangements contemplate a closing speech from Ex Speaker Reed in support of the minority opposition to the Wilson bill on Saturday, 27th. Speaker Crisp in the meantime will make a short speech in support of the bill. Chairman Wilson will wind up the discussion on next Monday and the vote will then be taken, and, with possibly a half dozen exceptions, which are even doubtful, the bill will pass by a party vote. The members of the majority who are opposed to the bill, seeing that nothing can be gained, are most likely at the last minute to turn in with their party. Men like Sperry of Connecticut and Sibley of Pennsylvania say that they will not, but the vote will show.

The systematic attempt on the part of the present Treasury administration by technical processes to depreciate the efforts which were being made under the provisions of the tariff act of 1890 to build up in the United States a tin plate industry, and the brain clout administered by the tariff bill now under discussion in the House, have had their natural effect. Although the special report of Colonel Ayer of the Treasury Department only brings the state of that industry down to the end of the third quarter of 1893, the decrease during that period was so alarming, amounting to 31 per cent., that the friends of that industry are apprehensive that the figures down to the end of the year will show even a more alarming falling off.

It is impossible to say from this point what the effect will be upon the tin plate industry if the present agitation is protracted, without some prospect in the Senate of at least a more favorable rate of duty than that proposed by the House. An effort will be made in the Senate to secure a compromise rate between the existing rate, 2.2 cents per pound, and the proposed specific rate of 1.2 cents a pound, which is an amendment by the committee of their original ad valorem duty of 40 per cent.

Although the existing duty was made contingent upon an aggregate quantity of tin plates of home production equaling one-third the amount imported and entered for consumption during any fiscal year from 1891 to 1897, and upon the faith of the Government capital entered into the production of this article, the Committee on Ways and Means and the majority of the House will carry out this breach of faith.

The attempt to hide behind a misrepresentation of facts has been fully exploded by the minority on the floor.

An industry which increased from 827,000 pounds July 1 to September 30, 1891, to 39,544,900 pounds April 1 to June 30, 1893, which was a maximum output, would be entitled to the benefit of the statute at least to the end of the period and under the terms of the act of 1890.

A quiet movement is on foot to carry a motion to recommit the Wilson tariff bill for amendment. Representative Charles D. Haines of the Kinderhook district of New York and a member of the majority of the House has a list of 35 of his political associates who will vote for a motion to recommit the bill unless certain amendments which they demand are acceded to by the committee. On a full House 53 votes with the solid minority strength will be required, but 50 might see the motion safely landed. Mr. Haines claims that there are 15 more Democrats who will join them in such a motion. If they can keep the strength up to the line in a crisis they can carry their point.

CONTENTS.

	PAGE.
An Old Grasshopper Engine. Illus.....	151
British Tin Plate Exports for 1893	152
Meurer Bros. Company's New Tin Plate Works.....	152
Tin Plate Report to September 30, 1893.....	152
Shipbuilding on the Lakes.....	152
The Cost of Billets and of Rails.....	153
The Iron Trade of North Britain.....	153
Tin Plate Practice. Illustrated.....	154
The Production of Bessemer Ingots and Rails	156
Stamping Marine Boiler Plates	156
Lake re in 1893.....	157
The Inland Steel Company.....	157
An American Lighthouse. Illustrated.....	158
San Francisco News.....	159
Aluminum: Its Properties and Its Uses.....	160
New Steel Steamship at Chicago.....	162
The Production of Pig Iron.....	162
Rock Emery Millstone. Illustrated.....	163
The Penokee and Gogebic Ore Interests.....	163
The Week	164
The Telephone Patent Situation.....	164
Editorials:	
Premiums for Naval Vessels	165
Looking Forward.....	165
The Unemployed	166
Personal	166
Obituary	166
Fluctuations in the Metals in 1893.....	167
British Iron and Metal Markets.....	167
Manufacturing:	
Iron and Steel	168
Machinery	169
Hardware.....	169
The Iron and Metal Trades:	
Chicago.....	170
Philadelphia	171
St. Louis	172
Pittsburgh	172
Cincinnati	173
Metal Market	173
Financial.....	174
New York.....	174
Washington News.....	175
Hardware:	
Condition of Trade	176
Notes on Prices	176
Eighth Dinner of the Hardware Merchants and Manufacturers' Association of Philadelphia. Portraits.....	178
Trade Items	183
Prize Competition No. 28.....	184
Price-Lists, Circulars, &c.....	184
Bicycles for 1894	185
The Shaw, Kendall & Co.'s Catalogue.....	186
Paints and Colors	186
Majestic Specialties. Illustrated.....	187
Blumer's Hand Crimpers. Illustrated.....	187
Card's Improved Screw Plate. Illus.....	188
Double Adjustable Tracing Wheel. Ill. 188	
The Ressler Roaster and Baker. Illus.....	188
Enterprise Coffee, Spice and Drug Mill. Illustrated.....	188
Sterling Bicycle Specialties. Illus.....	189
Adjustable Steel Screw Clamp Heads. Illustrated.....	189
Combination Rim and Threaded Tire. Illustrated.....	190
Myers' Hydraulic Spray Pump. Illus.....	190
The Arcade Cork Extractor. Illus.....	190
I X L Scale. Illustrated.....	191
Copy Book Holder and Letter Rack. Illustrated.....	191
Improved Steel Monarch Animal Poke. Illustrated.....	191
Improved Firm Joint Calipers. Illus.....	191
Farr's Self Sealing Tube. Illustrated.....	192
Heat and Odor Extinguisher. Illus.....	192
The Gem Freezer. Illustrated.....	192
Frog Spear. Illustrated.....	192
Current Hardware Prices	193
Current Metal Prices.....	200

HARDWARE.

Condition of Trade.

THERE ARE INCREASING INDICATIONS that a turn has been reached and that business is beginning to improve. There is certainly very much more activity in mills and factories, giving employment to many thousands of operatives, some of whom have been idle for months. The good effect of this will, of course, be felt almost immediately in all lines of business. We are also in receipt of confidential advices from many representative manufacturers in the Hardware and related lines, nearly all of whom report an evident improvement in business, some of them referring to a marked increase in their orders. The jobbing trade also refer to a perceptible improvement in the volume of business, and the trade are evidently buying somewhat more freely than for some time. They are still pursuing a conservative course, and are buying only such goods as are required for their immediate use or to replenish stocks which had become too much depleted and broken. The fact that the retail trade throughout the country have a much smaller quantity of goods on hand than usual is one of the important features of the situation, as most merchants are required to purchase at once in order to be in position to meet the demands of their customers. In the matter of prices there is little improvement to note and a strengthening of the market cannot be expected until the demand assumes a large volume. The small number of failures reported since the opening of the year is an indication of the general soundness of the mercantile classes, and the apprehensions of some who anticipated a different result with the closing of last year's business have thus been disappointed. Collections generally are reported as fair. There is little doubt that the financial condition of many houses is more satisfactory now than for some time, as the past half year with its close collections and curtailment of credits has witnessed a large diminution in the indebtedness of many merchants.

Chicago.

(By Telegraph.)

Shelf Hardware jobbers report a larger volume of business last week than previously. The demand contin-

ues of the same character as before. Good contracts are placed for spring delivery of seasonable goods, while the demand for Shelf Hardware is comparatively light. Reports from the building trades are encouraging, and it is believed that the low price of building material will cause an increased number of enterprises to be started up this spring, which will lead to an excellent demand for all classes of building material, which will include many articles of Hardware. Nails are even now feeling the indications of an improved condition, and retailers are ordering very freely from the jobbers. Collections are fair, and little complaint is heard of the slowness of country dealers in settling their old accounts. The Heavy Hardware trade is in hardly as good condition as Shelf Hardware, owing to the slackness of business among the smaller class of manufacturing consumers.

St. Louis.

(By Telegraph.)

Hardware jobbers report a steadily increasing trade. The run of small orders is phenomenally large, which would indicate that buyers are not yet prepared to stock up very heavily. The stocks are light, however, and as the indications are favorable for a heavy spring trade, they will doubtless increase their orders as the season advances. Some heavy orders have been received for Screen Doors and Windows, Poultry Netting, Lawn Mowers and Sprinklers, and in the line of Gasoline Stoves the advance orders already received compare favorably with those booked one year since. On the whole the situation shows decided improvement and business will, no doubt, continue to improve from now on.

Notes on Prices.

Wire Nails.—There is evidence of an improved feeling in the Wire Nail market. This is seen not so much in the matter of prices as in increased demand. Manufacturers are receiving many inquiries and booking a good many orders which come to them from both the large and the smaller trade. As a consequence there is much activity in the mills, and manufacturers are feeling more confident in regard to the course of business during the season. Prices have not as yet felt to any marked degree the influence of this increased demand, and the market is still represented by the quotation of \$1.10 for carload lots at mill, from which price a concession of 5¢ is made on attractive orders. Sales, however, have been

made on some large orders at \$1, but this is an exceptional figure which some of the manufacturers refuse under any circumstances to meet. The New York market is represented by the quotation of \$1.20 on dock, with the usual advance on small lots from store.

Chicago, by Telegraph.—Manufacturers of Wire Nails report that so many orders have been booked for future delivery that prices are held more firmly. An unusual proportion of the Nails has been specified for delivery in March, and makers are beginning to fear that they will have some trouble in filling all such orders promptly, and are urging buyers to anticipate the stipulated time to make sure of getting the supply they need. Ordinary factory lots are unchanged at \$1.20, Chicago. The advance recently made in Cut Tacks has thrown an increased business to the manufacturers of Wire Tacks who are thus in receipt of excellent orders in a line that for some time has been rather quiet. Jobbers have had an exceedingly good demand for Wire Nails from retailers and their shipments for the past week have been large, and yet prices are not inclined to be stiff, but to range more nearly to manufacturers' terms. Small lots from stock are quoted at \$1.25 @ \$1.30.

Cut Nails.—There is somewhat more inquiry for Cut Nails than during the past few weeks, and manufacturers report an increased volume of business. Prices are also somewhat firmer, if not actually higher. The market is represented by the quotation of 95 cents in carload lots at mill, from which concessions are sometimes made on attractive orders. At a recent meeting of the Eastern Cut Nail manufacturers, at which the large producers were represented, it was decided that the practice of selling at a factory price should be discontinued and the delivered price only be named. The New York price was accordingly fixed at \$1.05 base for carload lots on dock. The New York market is therefore represented by this quotation, with the usual advance on small parcels from store.

Chicago, by Telegraph.—Manufacturers of Cut Steel Nails report large inquiries from the West. Their nearby trade is continuing in about the same volume as reported last week, which was quite fair for this time of the year. Sales of Clinch and Casing Nails are much above the average in the Cut Nail trade for the past two or three years, which indicates some reaction in favor of these Nails. The price of fac-

tory lots on the regular basis is \$1.15, Chicago, but concessions are made on high averages. Small lots from stock are selling at \$1.20 to \$1.25.

Barb Wire.—There has been little change in the Barb Wire market since our last report. A good many inquiries are being received and the manufacturers are anticipating an active demand as the season opens. There is, as mentioned in our last report, considerable divergence in the quotations of the different manufacturers, some mills selling carload lots of Galvanized Four Point at \$2 and others holding firmly to \$2.10.

Chicago, by Telegraph.—The volume of business in Barb Wire is increasing. Jobbers report their customers taking hold with something of their old time freedom, doubtless influenced by the low prices now ruling, which are so much more in their favor than they had anticipated. Carload lots of Galvanized may be quoted at \$2.20 to \$2.25, and small lots from stock \$2.30 to \$2.40.

Padlocks.—William Wilcox Mfg. Company, Middletown, Conn., have just issued, under date January 1, a revised price-list of Padlocks and Padlock Keys, which is subject to a discount of 75 and 20 per cent., terms net cash 30 days. The list on Padlocks is as follows:

Wrought Iron Padlocks.

No.	Size. Inch.	1 Key. Per doz.	2 Keys. Per doz.
00000	2	\$2.10	\$2.35
0000	2	2.15	2.45
000	2 1/4	3.10	3.60
00	2 1/4	3.75	4.35
0	2 1/4	4.05	4.65
1	2 1/4	4.65	5.25
2	2 1/4	5.25	6.10
3	2 1/4	5.60	6.70
4	2 1/4	6.35	7.75
5	2 1/4	6.65	8.05
6	2 1/4	8.40	9.95
7	2 3/4	9.95	11.50
8	3	11.50	13.65
9	2 1/2	7.75	9.20
10	3	8.70	10.15
11	3 1/4	11.80	13.35
12	2 1/2	19.90	21.45
13	2 1/2	22.35	23.90
14	2 1/2	10.35	11.55
16	2 1/4	6.10	6.70
17	2 1/2	9.60	11.05
18	2 1/2	18.65	20.50
20	3	31.10	34.80
57	2 1/2	5.90	7.45
80	3	15.55	16.95
2300	2 1/4	8.70	11.20
2400	2 1/2	7.15	9.30
2500	2 1/2	9.30	11.60
2600	2 1/2	9.95	12.40
2700	3	12.40	15.50
2800	2 1/2	10.35	13.50
2900	2 1/2	9.60	10.80
3000	3	13.50	15.10
3001	2 1/4	7.15	8.35
3002	2 1/2	8.80	10.05
3003	2 3/4	12.40	14.00
3004	3	14.90	16.45
3005	3 1/4	15.00	16.60
3006	2 1/2	14.40	12.65
3007	2 1/2	7.45	8.35
3008	2 1/2	8.70	10.10
3009	2 1/2	9.35	10.75
3010	2 1/2	5.60	7.00
3011	2	4.20	5.45
3012	2 1/4	8.70	10.25
3013	2 1/4	4.65	5.60
3014	2 1/2	8.80	10.05
3015	2 1/2	7.75	9.30
3016	2 1/2	11.40	12.65
3017	2 1/2	8.35	9.55
3018	2 1/4	6.75	8.00
3019	2 1/2	6.50	8.05
3020	2 1/2	8.30	10.20
3021	2 1/2	17.60	19.20
3023	2 1/2	8.35	9.80
3024	2 1/2	9.00	10.25
3025	3	15.50	17.40
3026	2 1/2	10.35	11.90
3027	2 1/4	8.35	9.85
3028	2 1/2	6.80	8.35
3029	2 1/2	18.65	20.50
3030	2 1/4	6.20	7.75
3031	2 1/2	11.40	13.00
3032	2 1/2	11.50	13.35

3033	2 1/2	5.90	7.45
3034	2 1/2	8.70	10.25
3035	2 1/4	9.50	10.80
3036	2 1/2	5.80	7.15
3037	2 1/2	8.70	9.90
3038	2 1/4	6.90	9.50
3039	2 1/2	10.35	12.85
3040	2 1/4	7.75	9.00
3042	2 1/2	10.25	11.50
3043	2 1/2	11.90	13.50
3044	2 1/4	8.80	10.35
3045	2 1/4	8.70	8.15
3046	2 1/4	6.65	8.10
3047	2 1/2	7.60	8.95
3048	2 1/2	9.60	11.20
3049	3	12.60	13.90
3060	2 1/2	10.35	11.90
3061	2 1/2	9.80	11.10
3062	2 1/2	13.65	15.55
3063	2 1/2	9.30	11.15
3064	2 1/2	8.20	10.05
3065	2 1/2	11.50	13.35
3066	2 1/4	10.85	12.40
3067	2 1/4	10.65	12.25
3068	2 1/2	10.75	12.25
3069	2 1/2	6.20	7.15
3070	2 1/2	13.00	14.50
3071	2 1/2	10.85	13.35
3072	2 1/2	7.15	8.70
3073	2 1/2	14.00	15.85
3074	2 1/2	8.90	11.50
3075	2 1/2	9.00	10.55
3076	2 1/4	9.90	11.15
3077	2 1/2	5.90	7.45
3078	2 1/2	8.70	10.25
3079	2 1/2	7.10	8.70
3080	2 1/2	9.00	10.55
3081	2 1/2	11.20	12.70
3082	2 1/2	11.80	13.65
3083	2 1/4	14.50	16.05

Scandinavian Padlocks.

Flat Steel Keys—Nickel Plated.

No.	1 Key.	2 Keys.
3050	\$7.85	\$9.35
3051	10.00	11.50
3052	12.00	13.50
3053	13.10	14.60
3054	15.15	16.65

Plain Flat Steel Keys—Not Plated.

No.	1 Key.	2 Keys.
3055	\$7.45	\$8.70
3056	8.50	9.75
3057	9.90	11.50
3057 1/2	9.55	10.80
3058	11.60	12.85
3059	13.05	14.55

Brass and Nickel Plated Padlocks.

Brass Padlocks.

No.	Size. Inch.	1 Key. Per doz.	2 Keys. Per doz.
100	1 1/2	\$5.55	\$6.40
101	1 3/4	5.55	6.40

	Grain. Nos. 4 to 46 inclusive. Cents per lb.	Flour. Nos. 54 to 180, inclusive. Cents per lb.	FF. Cents per lb.
In kegs of about 300 pounds.....	4 1/4	5	3
1/2 " " 150 "	4 3/4	5 1/4	3 1/4
1/4 " " 75 "	5	5 1/2	3 1/2
10 pound tin cans, ten in case.....	6	6 1/2	5 1/2
" " less than " "	10	10	8
Crocus at same prices as the fine grain.			

No.	Size. Inch.	1 Key. Per doz.	2 Keys. Per doz.
102	1	6.20	7.05
103	1 1/2	6.80	7.65
104	1 1/4	7.40	8.25
105	1 1/2	8.05	8.90
112	2 1/4	23.00	25.45
113	2 1/4	24.75	26.25
114	2 1/2	30.05	31.55

Nickel Plated Padlocks.

No.	Size. Inch.	1 Key. Per doz.	2 Keys. Per doz.
106	1 1/2	\$7.10	\$7.95
107	1 3/4	7.10	7.95
108	1	7.70	8.55
109	1 1/2	8.35	9.20
110	1 1/4	9.00	9.85
111	1 1/2	9.60	10.45

Fancy Engraved Brass Padlocks.

No.	Size. Inch.	1 Key. Per doz.	2 Keys. Per doz.
115	1 1/2	\$5.55	\$6.40
116	1 3/4	5.55	6.40
117	1	6.20	7.05

Bronze Metal Padlocks, Brass Keys.

No.	Size. Inch.	1 Key. Per doz.	2 Keys. Per doz.
118	1 1/2	\$21.10	\$23.60
119	1 1/2	24.25	26.70
120	1 1/2	27.35	29.80
121	1 1/2	24.25	26.70
122	1 1/2	27.35	29.80
123	1 1/2	30.45	32.95
124	1 1/2	26.10	28.60
125	1 1/2	29.20	31.70
126	1 1/2	32.50	34.80
127	1 1/2	29.20	31.70
128	1 1/2	32.30	34.80
129	2 1/2	35.35	37.90

Bronze Metal Padlocks, Nickel Plated, Flat Steel Keys.

No.	Size. Inch.	1 Key. Per doz.	2 Keys. Per doz.
132	1 1/2	\$25.45	\$27.95
133	1 1/2	28.55	31.05
134	1 1/2	31.70	34.20
135	1 1/2	30.45	32.95

Padlocks in Sets, With Master Keys.

No.	Size. Inch.	In sets of 4. Per set.	In sets of 6. Per set.	In sets of 12. Per set.
5	2 1/2	\$2.75	\$3.95	\$7.25
6	2 1/2	3.20	4.50	8.85
7	2 1/2	3.40	4.75	8.95
8	3	4.45	6.40	12.10
9	2 1/2	3.20	4.50	8.35
10	3	3.55	4.95	.....
11	3 1/4	4.25	6.50	12.40
18	2 1/2	7.45	10.55	19.85
20	3	11.60	16.75	22.30
57	2 1/2	2.50	3.45	.....
80	3	5.80	8.35	16.15
2300	2 1/4	3.50	.....	.....
2400	2 1/2	3.65	.....	.....
2500	2 1/2	4.35	5.90	.....
2600	2 1/2	4.60	6.25	.....
2700	3	4.75	6.80	.....
2900	2 1/2	3.65	5.45	.....
3000	3	3.15	7.40	14.15
3001	2 1/4	3.00	4.20	.....
3002	2 1/2	3.55	5.05	.....
3003	2 1/2	4.75	6.50	.....
3004	3	5.55	8.05	.....
3005	3 1/4	5.65	8.10	.....
3006	2 1/2	4.45	6.35	.....
3014	2 1/2	3.55	5.05	.....
3021	2 1/2	7.15	10.05	18.90
3025	3	5.80	8.35	.....
3030	2 1/4	2.70	.....	.....
3032	2 1/2	4.45	6.40	.....

The circular also gives the revised list on Padlock Keys, which is subject to the discount named above, and also quotes Wrought Iron French Rim Locks and Wrought Iron American Rim Locks, which are subject to a discount of 50 per cent. net cash. The prices of Wrought Iron Plate Locks and Plate Lock Keys are also given.

Emery.—The manufacturers of Emery have adopted the following revised list, which bears date of January 11, 1894. It will be observed that advanced prices are announced in Flour, CF, F and FF:

Lawn Sprinkler.—The Jewel Lawn Sprinkler, manufactured by the Detroit Sheet Metal & Brass Works, 64-72 Orleans street, Detroit, Mich., and illustrated in *The Iron Age* January 11, 1894, is sold, f.o.b. cars Detroit, 90 days, 2 per cent. for cash in 10 days, at the following net prices, according to quantity:

Per dozen.....	\$8.00
Per dozen, gross lots.....	7.00
Per dozen, six gross lots.....	6.00

Folding Barrows.—The Champion Folding Steel Frame Wheelbarrows manufactured by the Bryan Mfg. Company, Bryan, Ohio, of which an illustration was given in our issue of January 18, 1894, are sold at the following net prices:

Steel frame, steel wheel, wood tray..	\$18.00
Steel frame, steel wheel, steel tray..	30.00
Steel frame, steel wheel, Garden....	30.00

Grate Guard.—The Monarch Grate Guard, manufactured by the Cincinnati Mfg. Company, Cincinnati, Ohio, and illustrated in our issue of January 11, 1894, is sold assorted per dozen at \$3 net.

Acceptance and Response, by the Secretary-elect,

T. James Fernley.

Sirs, I thank God, I have been so well brought up that I can write my own name.

All.—Away with him—hang him with his pen and inkhorn about his neck—*Shakespeare*

My Adopted Country,

Hugh McCaffrey.

Master, go on, and I will follow thee
To the last gasp with truth and liberty.
—*Shakespeare.*

A Lawyer's Opinion of Business Men,
R. O. Moon.

Good counsellors lack no clients; though you change your place, you need not change your trade.—*Shakespeare.*

What Others Think of Us,

George S. Graham.

O wad some power the giftie gie us
To see ourselves as ithers see us.—*Burns.*

The lights are out, and gone are all the guests

That thronging came with merriment and jest.—*Longfellow.*

the manufacture and sale of Hardware.

At the conclusion of the dinner, which was a most excellent one and admirably served, Fayette R. Plumb,

THE RETIRING PRESIDENT

of the association, called the company to order and made the following address, which was received with enthusiastic applause:

I consider it a great honor to be accorded the privilege of welcoming you



Our Homes,

Lewis W. Klahr.

Nor need we power of splendor,
Wide hall or lordly dome;
The good, the true, the tender—
These form the wealth of home.—*Bulwer.*

Friendship in Trade,

John W. Grange.

A man that has friends may show himself friendly.—*Proverb VIII. 24.*

But it is not every man's talent to force a trade, for a customer may choose whether he will buy or not.—*Dryden.*

The Trials of an Editor,

R. R. Williams.

That which provokes us is trial, and trial is by what is contrary.—*Milton.*

PORTRAITS.

We give herewith a portrait of Fayette R. Plumb, the retiring president, who presided at the dinner until the point was reached when he surrendered the chair to William W. Supplee, his successor, whose portrait is also given, as well as that of Samuel Disston, the vice-president of the association. Apart from the interest which attaches to these portraits as of gentlemen in prominent official position in the association, they will be of wider interest as of men with an international reputation in connection with

to-night to this famous banquet room. It unquestionably enjoys the distinction of entertaining within its walls a larger number of the famous and most illustrious men of the Republic than any other banquet room in the nation.

When we look back through the long vista of years to the trying days of the Rebellion, our hearts swell with pride and admiration to find the Union League of Philadelphia one of the strongest supporters of the Government.

This is the eighth annual banquet of our association, and it is a pleasure to be able to state that notwithstanding the fact that 1893 has been most disastrous to the business interests, our association was never so prosperous as

it is at the present time. This is largely owing to the efficient work of the chairmen of the various committees, particularly the chairman of the Membership Committee, who has been of great assistance in securing new recruits. The efficient manner in which the secretary has fulfilled every trust since the formation of our association is also worthy of our commendation.

My term as president terminates at the close of my remarks. I therefore wish to extend to each member of the association my sincere thanks for the confidence and esteem manifested toward me during my administration, also the patience and courtesy extended upon all occasions when it has been my good fortune to preside over your deliberations.

In obedience to your unanimous verdict and in accordance with our newly established custom, I now take pleasure in presenting the president-elect. This I consider one of the most pleasant duties assigned me, because if you will kindly look down the entire list of members and underscore the names of those you think would fill the position with credit to you, there is no one whom you could more safely choose than my worthy successor on my right, not only on account of his ability, but because of his faithful and conscientious performance of every duty assigned him.

We can truthfully say, "Lead on to victory, our strength increase."

Before I relinquish the chair permit me to present this gavel on behalf of your fellow members. May your rulings be as wise as the honesty of your heart will dictate.

Gentlemen, William W. Supplee, the new president. "The king is dead; long live the king."

PRESIDENT SUPPLEE'S ADDRESS.

The following is the address of William W. Supplee, the newly elected president of the association. It was listened to with the closest attention, very much appreciated and frequently applauded:

I desire to join in the words of welcome extended to all those who are present to-night and to thank the retiring president personally for his courteous words relating to myself, which certainly should be an incentive in the path of duty, and especially desire to thank the members of this association for the honor conferred in selecting me as their presiding officer; though I cannot hope to perform the duties in successful competition with the genial, courteous and affable retiring president, I will discharge those duties to the best of my ability.

There are certain characteristics, qualities and traits which come largely from inheritance, and while the results of education and business training are acquired from long hours of application and study, they are more pleasingly presented in public when accompanied by a natural style of oratory, and when you hear an immediate response from some trained orator do not deceive yourself with the idea that it is always a burst of extemporaneous genius, but rest assured it may have been the result of study, which gave power and faculty to the outburst which seemed to spring from the moment.

It is related of a foreign artist who had been given an order for a most powerful picture that when asked the price he named what the person thought exorbitant, and he demurred, saying the price seemed to him excessive for the work of only a few days. "But," cried the artist, "you forget that I have been many years in learning how to paint this picture in a few days."

Lord Brougham once stated that the speech before the Queen was written and rewritten several times over and required three to four weeks of preparation.

But, in striking contrast to these, my preference would have been to have given these few remarks before dinner as a physician prescribes his bitter tonic, or as some men take their daily bitters before meals, and not have mixed the dose with the sparkling champagne or with the more temperate sparkling apollinaris, or simultaneously with the pyrotechnical display of oratory which is to follow.

I read under my name upon the menu the quotation from Whittier: "Lead us on to victory; our strength increase."

This quotation is very suggestive. There are those present who can look back a few short years, when half a dozen were gathered together in the cozy library of Mr. Samuel Disston, when the formation of this organization was first suggested.

At that time but few of the jobbing hardware merchants of Philadelphia were personally acquainted with each other, and if they were pointed out in the street possibly were looked upon as a wolf in sheep's clothing, or a leopard (although the spots were not visible to the naked eye), or perhaps a sly fox, and many looked upon the manufacturer only as a person whose sole aim was the lion's share of the profits.

The result of the formation of this organization was first acquaintance and pleasant meetings, next social intercourse, which increased into friendship and indeed intimacy, and, as you can see by those present, we have added to the ranks, and we may now be looked upon almost as a mutual admiration society. Lead us on to victory.

Governor Pattison stated recently at a luncheon, where I was present, that the State of Pennsylvania was better situated to have a stone wall built around the State than any other State in the Union. In this he is unquestionably correct. We have the fertile soil upon which to raise our wheat to provide for our maintenance; we raise corn, oats and hay to provide for the cattle; we have the sheep that graze on our hillside, from which we secure our wool; we raise tobacco from which to gratify our taste, and grapes to produce the wine, the luxury which we have indulged in to-night; we have millions of tons of coal secreted in our banks; we have the iron and iron ore at our command, but our manufacturers are not satisfied to be confined within a wall, and there are those in our association whose goods can be found in every State in the Union, and indeed they penetrate into all parts of the world. But no great results can be achieved without indomitable energy, application, study and work.

I will, however, not detain you, as I am quite aware of the outburst of oratory which is to follow and is now quite ready to explode.

Before introducing our retiring vice-president, Mr. Ritter, I must refer to the quotation on the menu from Macaulay: "Vices so splendid and alluring as to resemble virtues."

If we accept this as stated, certainly a very thick veil has been lifted. We have all looked upon him as a person of extreme virtue and not merely an outside covering, and, until I have further evidence, I am not willing to accept the quotation as literally true in his case.

Permit me to introduce Mr. James H. Ritter, who will in turn introduce the in-coming vice-president, Mr. Samuel Disston.

JAMES H. RITTER.

Mr. Ritter then arose and made the following interesting address, in the

closing paragraphs of which he gracefully introduced his successor in the office of vice-president:

Some of our brothers are so happy as to believe in what are called "works of supererogation" in which we may hope to do good works over and above our measure, and so I feel as if I am doing a work of supererogation when I rise to introduce our new vice-president—a man known throughout the length and breadth of our American continent to all those engaged in our business of Hardware.

Now I know Shakespeare says: "If 't were done, 't were well done quickly," but o'er the dinner table one is allowed to ramble, and so I crave your pardon while I say a few words in honor of this calling in which we make our bread and butter. I say "bread and butter" advisedly, for, as is only too well known, the Hardwareman is generally content with little, and is blessed with a spirit that is not covetous.

Many wise men have tried to divide all mankind into two classes. Was it not Charles Lamb who divided them into "those who borrow and those who lend?"—a division which often comes sharply home. But more fruitful have been the attempts to distinguish man from the animal creation, and I admit the distinction is not always easy, as Rip Van Winkle found when he said "If my dog Schneider vos here he would know me." Perhaps the most distinctive definition of man is that he is a tool using animal. The lower animals have greater strength, more endurance and almost equal cunning, but never do they arrive at the dignity of using tools. Only man has the insight and wit to use the lever, hammer, saw and plane, and this is at once his badge of superiority. Had I the necessary time and you the required patience, it might be interesting to trace the origin of tools, and see how primeval man, recognizing the inferiority of his animal powers, at once began to reinforce them by their use. Doubtless the first tool was the rude club or stone used in striking a heavy blow. Soon man saw the inconvenience of losing the stone every time he struck a blow, and so he split a stick and fastening a stone in the cleft by thongs of vegetable or of skin, he made the first stone hammer. I wonder whether he took out a patent on his invention, and if so, whether he spent all his profits in fighting pirates. Having an axe, he soon found its blunt edge a very common divisor and so cast about him for some more ready way of dividing materials—wood chiefly. Fishhooks were early invented, and may be the jagged sawteeth of some fish suggested the saw, or who knows whether the skin clad cave dweller, crouching in his cave entrance during some terrific thunderstorm, may not have seen the zigzag lightning flashing its way through the apparently solid sky and so bethought himself of the saw. Then followed the plane for smoothing—probably a simple piece of sandstone originally, and from this the file would naturally come.

But enough of this surmising. We know that man has gone on from age to age improving his tools, increasing the discount, devising new tools in endless variety, and perfecting them to such an extent that not only have we machines with almost human fingers but with almost human intelligence, as in the phonograph and the comptometer.

In old ages the toolmaker has had value and respect among men, and with good reason. Wherever man is there you find tools. The pioneer, with an axe, hews his way into the pathless Congo forest, and straightway follow the larger tools of the steamboat, the locomotive and the faro table.

In earliest times he was a prince

among men and gods who could fashion tools. Holy Writ tells us of Tubal Cain "the forger of every cutting instrument of brass and iron." Norse legends tell us of Thor, the hammer god, who made the thunder by blows of his hammer, but perhaps the clearest picture of this legendary honor given the toolmaker is found in the legends of ancient Greece. There great Jove rules in Olympus over a turbulent and frolicsome family, but all the gods are dependent upon Vulcan, the toolmaker, for their supplies for the arts of life. He it is who makes the thunderbolt (at discount 75 and 10 and 5 per cent.) which Jove darts from his hand, and forges the spear of Minerva and the helmet of Mercury (at discount 65 and 10 and 5 and 7½ and 5 per cent.). He, too, builds their skyey palaces (at a contract price for Hardware of \$7.92 per palace) and adorns them with such works of art and skill as ne'er were seen by mortal eyes, and yet, like his successors in the Hardware business, he is badly treated, repaid with laughter and mocking and finally lamed by being thrown by Jove out of heaven.

So it may comfort us to think if our business does not bring the reward and praise it should, that we are as well off as our predecessors. Certainly, too, our trade is a clean and honest one. It has its tricks. What trade has not? But it does not minister to the follies or vices of men. No man gets drunk on a keg of nails—no, not even on the profit on a keg of nails, and no man beclouds his brain with a cigar emery.

But now it is time I came to my text on vice, but being an "ex vice" myself I naturally hesitate in giving this name to another. I know those who hear me realize "there's many a true word spoken in jest." We have our likes and dislikes of our fellow men, sometimes with reason and sometimes without, as in the rhyme:

"I do not love thee, Doctor Fell,
The reason why I cannot tell;
But this alone I know full well—
I do not love thee, Doctor Fell."

And yet even in the men we like there are often faults to which we cannot shut our eyes, and it is pleasant indeed when we can say of any one, in the language of England's picturesque historian, that even his vices are "so splendid and alluring as to resemble virtues." Such a man it is my pleasant duty to introduce to you to-night in his new dignity of vice-president. Personally he needs no introduction. Among Hardwaremen the world over the name of Disston is a synonym for honest goods and fair dealing. Individually he is known to all of us as a good fellow and loyal friend, and I feel sure that our association will go on with increased vigor under the management of our new vice-president, whom I now introduce by his best known name of Sam Disston.

SAMUEL DISSTON.

Mr. Disston's response was rather brief, but was of special interest as touching the manner in which the formation of the association was brought about, and the advantages and benefits which have been derived from it. His remarks were as follows:

When the association was first talked of and the advisability of its being formed carefully considered, those interested to-day had no idea that it would prove of such great benefit to the Hardware trade in Philadelphia. To our lamented friend, William J. Lloyd, belongs the credit, I think, of bringing the association into existence. He it was who discerned the benefits which would accrue to the trade if

they could be brought together in harmony and made to work by associating with each other to talk and discuss matters of business, which would be of benefit to all interested. Previous to this time there had been no concentrated action among the trade, and the consequence was when the question of cutting prices came up, the taking of each other's salesmen without due notice, and many other acts that would start unpleasant feelings, could not be satisfactorily adjusted without a conference. Mr. Lloyd said to me that he believed it would be a good idea if I could do something to bring them together, and it struck me that it would be an agreeable way to have them meet at my house informally. We all enjoyed ourselves, and from that little gathering there bloomed into life this association. I will not pretend to discuss or speak upon the advantages and benefits it has been, its work speaks for itself. In the struggle for business which will continue on until life's work is done, we have felt more kindly toward one another, and have conducted our affairs in a more generous and manly spirit than ever before. It has brought us together in a sociable way. We have become much better acquainted and are stronger friends than before. I sincerely trust it may long continue in the good work which it has been doing, and I am sure if we will all resolve to do the best we can in every respect, the result will be of advantage to all its members. The officers deserve credit for the manner in which its affairs have been conducted, and as you have elected me to the vice-presidency I pledge my word that I will do all I can for its continued success.

THE RETIRING SECRETARY.

The secretary-elect, T. James Fernley, was introduced to the company by E. D. Eyre, who spoke as follows:

The election which was held yesterday by our association revives the familiar saying of "Turn the rascals out," and off goes our heads in one, two, three order. My worthy seniors in office have been called upon to vacate, Liliuokalani-like, and now it comes to my turn, although I am a veteran office holder.

It seems that the dual office of secretary-treasurer is too much for one man of ordinary size, like myself, and doubt was expressed at our last meeting whether it should not be divided into two offices and held by two persons instead of one, unless one could be found in our ranks large enough to hold both offices. It was finally decided by weight and settled on our modern Falstaffian member, Mr. Fernley. Every association dollar that enters his right side pocket has to make the rotund circuit before it can emerge from his left pocket, and it is hoped that this large obstruction may enable our treasury to fatten like its guardian.

I have kept a sharp eye on the reserve fund to see that it was not impaired, and I hope that this change in the administration will result in the continued maintenance of the credit of this association. We are all suffering from financial mismanagement, occasioned by a change of administration, and I hope that my worthy successor may continue to maintain the dignity and strength of this association.

It is an unpleasant thing to have to step down and out after having held exalted positions and go back into the ranks among the plebeians (but in my case, to soften the fall, I have been dignified by having been made an honorary member) which, although appreciated, is like being put upon the

high shelf (as it were), like antiquated documents; still, it is a dignified position, and from the elevation you can look down on the contentions going on below.

I would remind our visiting friends, however, that our contentions are harmless, and savor more of love feasts, and although in our various business places we watch with eager jealousy our competitor's actions, we don the uniform of peace when we face each other at our meetings.

Our success as an organization is due to our utter unselfishness when we gather at our monthly meetings, and although there is often not enough in common between us to consume the time allotted to our meetings, we have been brought into closer communion with each other and a feeling of social friendship has been engendered between the merchants and manufacturers in our line that has abundantly rewarded us in our union, and has enabled us to act in concert on all public questions of the day.

Before closing my remarks and introducing my stalwart successor, I wish to pay respect to the noble building and the historic room in which we are now feasting. I well remember its earliest days of glory, when it was looked upon as the rallying point of the faithful in this city and equally detested by the opposition, where the Union soldier and citizen loved to gather in the darkest days of our country's peril; surrounding it I have witnessed thousands of men and women with anxious, upturned faces waiting with bated breath to hear some news from the battle front when our brave soldiers were in danger. The onlookers felt that those who went in and out of its doors were the staunch supporters of our country, and a warmth of feeling went to them from those who were not privileged to enter. The effect must have been equally impressive to those who stood on the balcony and looked down into those earnest faces and surveyed the Union clubs as they marched past with deafening cheers at the sight of the word "Union" emblazoned in letters from the front. Yes, this is a hallowed spot, and I believe it vies in the veneration of the people with the State House, and this room (which has reverberated with the words of our country's greatest men) with the sacred Hall of Independence. Long may this building stand to kindle in the hearts of our people the love of their country. I now beg to introduce to you my worthy successor, and wish him a career of usefulness to the association.

T. JAMES FERNLEY.

After Mr. Eyre had resumed his seat his successor, T. James Fernley, arose and gracefully accepted the position of secretary and treasurer of the association in the following address:

Mr. President and Gentlemen: It is always with much reluctance that I arise in the august presence of the Hardware Merchants and Manufacturers' Association, learning as I have from personal contact that many of you are men of unusual literary ability, and my embarrassment is increased when I see you accompanied, around this beautiful festive board, by friends who are prominent citizens of Philadelphia, and its suburb 90 miles away, commonly known as New York.

But I must respond to the introduction of my esteemed friend, Edward D. Eyre, and give my final answer as to whether I accept or decline the dual position of secretary and treasurer of the Hardware Merchants and Manufacturers' Association. During a lifetime which is numbered in years by the length of a generation, it is the first time that any organization with

which I have been connected has dared risk its reputation by placing the speaker in a position of honor and trust. So far as the honor attached to the position is concerned, I feel that I can stand it. But when I think of the trust, the railroad securities and bonds, as well as the cash from yearly dues and fines for non-attendance at meeting, that will come into my hands, I falter.

But I see you are in suspense as to my answer. Gentlemen, I must relieve you by saying that I accept the office and thank you for the unanimous election. And now one word to the guests of the evening in apology for what will be inflicted upon them by those of our members who are to respond to toasts. We, as a committee, have had great difficulty in arranging the programme in such a manner as would permit some of our guests an opportunity to be heard, as many of our own members have appealed to us for a chance to display their remarkable literary abilities.

You have heard from our retiring as well as our new president, our new vice-president as well as his predecessor, Mr. Ritter, and from my esteemed predecessor. You have only had a small portion of the literary feast that is in store for you.

You will doubtless be edified during the evening with addresses from the members of this association who are not accustomed to after dinner speaking. The chairman of the Banquet Committee, Mr. Plumb, to whose efforts we owe much for the success of this occasion, has requested me to apologize in advance for them, and also for any cobweb covered stories they may narrate. And now, Mr. President, it becomes my pleasure and duty to perform my first official act by presenting to you on behalf of your many friends as the insignia of your office this magnificent gavel, the ebony being symbolical of the strength of your character, and the gold band being typical of the purity of your life. Accept it with the hope on the part of our membership that the association may prosper under your administration as gloriously as under that of your predecessor, Fayette R. Plumb.

SPEECH OF HUGH M'CAFFREY.

At the conclusion of Mr. Fernley's remarks, which appropriately completed the initiation of the new officers, the president introduced Hugh McCaffrey of the McCaffrey File Company, who spoke in substance as follows, his eloquent address being greeted with frequent and hearty applause:

When but a boy in my native country of Ireland, news from America, the land of the free, was always listened to with eagerness and delight. The frequent perusal of letters and papers made me, in common with other lads of my age, long to be able to cross the water to the great country where everybody had a chance to get along in the world. Little did I then dream that in years to come I would attain my wish and be an adopted citizen of this glorious republic! And still less did I dream that I would be at this moment in Philadelphia, amid a distinguished gathering of the Hardware Merchants and Manufacturers' Association, surrounded by beautiful flowers and inspired to say a few words of tribute to "my adopted country."

I cannot do justice to the greatness of the subject. America—the land of civil and religious liberty, where the oppressed of other countries find a haven of refuge, where every man, woman and child can aspire to the en-

joyment of the fruits of their labor, without interference from governmental injustice. It fills me with pride to witness the position which the United States holds among the nations of the earth, and with love and admiration for the noble patriots who gave their best thoughts and their lives and fortunes to accomplish American independence and to maintain it during the past hundred years or more.

While but an adopted citizen (although of many years' standing) I feel animated by the example of the Revolutionary heroes who have taught the world by the results they achieved what a government of the people really means. And it makes my heart fill with joy when I think that among those heroes were many of Irish blood, like myself. It needs but to scan the pages of the history of the Friendly Sons of St. Patrick of this city (of which society I have the honor to be a member), to find how closely the record of Irish-Americans is woven in the history of the United States. Antedating the Revolution itself (for there were many Irish emigrants here in the early days of the colonies), the moment that the signal gun of Lexington sounded in Philadelphia, the Friendly Sons, with one accord, offered their services to their "adopted country." There were no traitors or Tories among their number, but every man of them responded to his country's call, and throughout the long struggle for independence, wherever the battle was the fiercest, there were they found, ready to sell their lives dearly for the cause in which they had embarked. Whether it be "Mad" Anthony Wayne leading the assault on Stony Point, General Knox directing the artillery of the army, Surgeon-General Cochran taking care of the continental hospitals, Generals Hand, Stewart, Irvine, Thompson, and many other brave officers fighting at the head of enthusiastic Irish soldiers, or Commodore Barry leading the American ships on the sea and capturing the so-called invincible British cruisers, you will find the Friendly Sons of St. Patrick doing their full share of the glorious work. Even the great Washington himself was glad to become an Irishman "by adoption," and belong to a society which had as members such distinguished men as I have mentioned, and for a testimony that he meant what he said, we still preserve the original constitution of the society, signed by "Geo. Washington" as a full member.

And not only were Irish-Americans conspicuous in the army and navy of the Revolution, but when in 1780 the troops were starving at winter quarters and patriots began almost to despair of the good cause, the patriotic citizens of Philadelphia made the heart of Washington beat with joy and filled his brave and suffering troops with new hope and encouragement by organizing a fund to supply food and clothing to the army, and out of £300,000 raised the Friendly Sons of St. Patrick of Philadelphia contributed more than one-third the whole amount.

So you see, gentlemen, that I, as a native of Ireland, feel at home in "my adopted country," which Irish blood and Irish patriotism helped to establish.

And the glorious record made by the Revolutionary heroes has been continued since, whether it be in the war of 1812, with a Friendly Son of St. Patrick, Commodore Stewart, holding aloft our flag on the ocean; or another Friendly Son of St. Patrick, General Andrew Jackson, beating back the British troops at New Orleans; or on the fields of Mexico, with a Friendly Son of St. Patrick, General Patterson (second only to Scott) leading the American troops; or in the War of the Rebellion, with the Union hosts

marshalled by "the great captain," General Grant, another Friendly Son of St. Patrick, Irishmen and their descendants have proved their love for their "adopted country."

When the Union League, in whose beautiful building we partake of our annual dinner this evening, was lifting up its voice in favor of a united country and straining every nerve to send brave defenders to the front, they found the Irish citizen ever ready to volunteer to save his "adopted country" from disruption, and in the triumphs of peace as well as war we find the same Irish citizen alive to all his duties. What does not America owe to day to that Friendly Son of St. Patrick, Henry C. Carey, the apostle of protection to American industry? Thirty-five years ago merchants carried in their stocks about 5 to 10 per cent. of American manufactured goods and 90 to 95 per cent. of foreign make. To-day they carry 90 per cent. or more of American goods and 10 per cent. or less of foreign goods. It was the teachings of Henry C. Carey that made this possible. It was his ideas that built so many factories; that established so many industries; that brought so much prosperity to our country; that gave employment to so many men; that created so many wealthy merchants, and that made it possible for a large and prosperous association like ours to assemble annually around a festive board to celebrate the growth of American manufactures.

So that, gentlemen, it is very appropriate that you should have among your toasts one to which "an adopted citizen" can respond. I feel proud of "my adopted country" and of the record of the Irish citizens, but at the same time I might say in conclusion that all thoughtful Irishmen feel grateful to this glorious country for the lessons it has taught the world, for the heartfelt sympathy which it has poured out toward the people of other lands who are struggling for liberty, for the kindly welcome which it extends to the oppressed. More especially do they feel grateful for the generous sympathy and assistance toward the poor struggling people of their native land. If all men were like the good and peaceful William Penn, the founder of our city, there would be no rebellions—even in Ireland—and it is the example of free America, with her republican government, which is gradually teaching the world that all just rule depends on the consent of the governed and that every people has its inalienable rights which must be respected. May "my adopted country" ever continue to set the example for other nations to follow, and if she ever is in peril or her republican institutions threatened, she will find her adopted citizens ever ready, as they have been in the past, to rally to her standard and shed their blood in her defence.

OUR HOMES.

The next speaker was Lewis W. Klahr, who, in response to the toast "Our Homes," made the following pertinent and interesting remarks:

It was suggested to me a few moments ago by several of my friends, who probably know me the best, that before I would be through most of you would want to go home, and as I feel at the present moment I would rather like to be there myself.

It is said in the oldest of axioms that "self preservation is the first law of nature." If to love our home is not the first law of nature it is certainly very close to it. Home is something of which we are not in the habit of thinking as existing in different degrees. It is one of the few things

to which the superlative degree does not seem to apply. In thinking of home in a general sense we do not consider how great it may be or how humble. We do not consider how elegant the exterior or how beautiful the appointments inside. We do not think whether it has marble halls or whether the roof is thatched with straw. We do not care whether the master

Wears a cap, or wears a crown ;
Or sleeps on straw, or sleeps on down.

Home is a home, "for all that and all that." It is the bourne to which the business man escapes from his cares and the excitement of business life. It is where the public man, tired of the bustle and surfeited with the applause of the populace, finds that quietness sweeter to him than all his honors. It is the place where the weary alone can find rest. It is the spot where whatever we have of refinement is first grafted into our minds. Where whatever we have of what is moral or divine is first molded into our spirit. It is the place where the ties of family, the strongest of all ties, are formed, and no sorrow so great as when they are broken. Home is commemorated in song as the "dearest spot on earth," and in hymn, in plain and simple language, "that there is no place like it." We all know how appealing is a national anthem. We Americans know how inspiring is our Star Spangled Banner, likewise the English with their God Save the Queen, and the French with the Marseillaise hymn; but no anthem is half so appealing as "Home, Sweet Home." That hymn belongs to no set of people, no nationality, but belongs alike to all the people of the earth.

While our ideas of home generally run to the sentimental, we nevertheless very often apply them in many practical ways. The young man starting in life, if we find his first efforts at accumulation are for the purpose of acquiring a home, we make up our mind at once that he must be built pretty near right.

In business, in giving a line of credit, if the report comes that the man is industrious and owns his own home, we trust him as much as the man worth four times more who does not own his own home. In any community, if for any reason a useful and patriotic citizen is wanted, it is the exception if he is not selected from the owners of homes.

It is nothing new when I say our city is the city of homes. It is this fact that makes it the typical American city of these great United States. Love of home, after all, is the foundation of all patriotism. It is all very well for other cities to make jests of our slowness (although never denying our Americanism), and with this reputation of Americanism and the serene knowledge that we are the possessors of so many homes, the very essence of living itself, we can very well afford to stand all their jests.

I remember some years ago at a reception given to an English gentleman from one of the manufacturing districts of England and who had traveled quite extensively in this country, I, American-like, expected to hear him say that everything he had seen on this side was greater and more wonderful than elsewhere, but he insisted that he hadn't been so terribly surprised until he came to Philadelphia and went to the northeastern part of our city and there saw how our mechanics lived, every one in his own home and with all the modern conveniences, and this he said was the most wonderful thing he had ever seen in this or any other country.

I believe in the motto "God Bless Our Home," and will conclude by say-

ing God bless all your homes, and may they ever be as

"Bright as a star, when only one
Is shining in the sky."

OTHER TOASTS.

In introducing R. R. WILLIAMS, the Hardware Editor of *The Iron Age*, the chairman referred to the position of *The Iron Age* and its circulation in all parts of the country and of the world. In response to the toast "The Trials of an Editor," Mr. Williams entered a disclaimer as to the editor's having any trials, and then touched upon a number of topics suggested by the occasion and having special reference to trade journalism as related to Hardware interests. He was followed by R. O. MOON, who in speaking to the toast, "A Lawyer's Opinion of Business Men," gave them high praise for their character and ability and made an earnest plea for their activity in public and political matters, expressing the opinion that Congress would be very much strengthened if there were fewer lawyers there and more merchants and manufacturers. After several brief addresses and recitations WILLIAM H. WILLIAMS, president of the Hardware Club of New York, was introduced and made an able and interesting speech, after which the assembly adjourned with mutual congratulations on the success of the banquet.

Trade Items.

PADDOCK-HAWLEY IRON COMPANY, St. Louis, Mo., issue a calendar, which is designed to show their facilities for doing business and the extent of their stock; also to remove any possible doubt, on account of their recent fire, of their ability to handle business to the entire satisfaction of their trade. Five illustrations show their stores and receiving depots, and a view is given of their old location, which was destroyed by fire in November, 1893.

WILLIAM G. MILLER, for the past 15 years with P. & F. Corbin, has connected himself with Peck, Stow & Wilcox Company, and hereafter will represent them in the leading Western cities. He will sell their full line, and cover the same territory heretofore visited by Robert Pigott, who leaves the company after ten years in their service. Mr. Miller, previous to entering the employ of P. & F. Corbin, traveled for Miller Bros. & Keep, Chicago, seven years, until their business was discontinued in 1878.

THE WARREN-EHRET COMPANY, manufacturers of Roofing and Roofing Materials, Philadelphia, have removed to the new Vulcanite Building, 1710 Market street, in that city, where they occupy the first, third and fourth floors. Their new quarters are commodious and convenient and fully meet the present demands of their growing business. They will continue to carry in stock a full line of Building Papers, Roofing Materials, two and three ply Prepared Roofing, Carpet Linings, Deadening Felts, Roof Paints, Insulating Paper and other goods sold in connection with their business. In a circular they are sending out they state that they will also continue to apply Ehret's Slag Roofing, Warren's Gravel Roofing and Felt and Cement Roofing. They are also prepared to estimate for Slate and Metal Roofing.

NATIONAL SPECIALTY MFG. COMPANY are a new organization in Philadelphia, although composed of persons well known to the trade. The company will manufacture Grocers' Hardware, and other specialties, particulars of which will be presented in due course. The officers of the company are Thomas Devlin, president; Louis J. McGrath, vice-president; Robert J. Thompson, secretary and treasurer, with Charles A. Mitchell as general manager. The works are fully equipped with the most modern machinery and appliances, which will enable the company to meet all the requirements that may be presented to them. C. M. Avery, who needs no introduction to the trade, will represent them on the road.

ROBERT FIGOTT, who has represented Peck, Stow & Wilcox Company on the road for about ten years, and was for a long period with Russell & Erwin Mfg. Company, and before that with Sargent & Co., will hereafter, with Daniel F. Kemp, represent a number of lines of goods made by J. C. Jewett Mfg. Company, McCaffrey File Company, Buffalo Forge Company, Knapp & Cowles Mfg. Company, Peerless Mfg. Company, John S. Fray & Co., Snell Mfg. Company, Buffalo Hammer Company and others. The company he has just left wish him every success in the future, and accepted his resignation with regret.

FRED ARBER, Brimfield, Ill., has in use tickets for each customer, with amounts of sales to be punched out when cash purchases are made. The amount's on each ticket represent \$10, and a Jewel Cook Book is presented free of charge when purchases amount to \$10. An illustration and description of the book is given on the back of the tickets.

ANTON TRUNK has returned from his European trip, having visited England, France, Belgium, Holland and Austria.

NEW HAVEN WIRE MFG. COMPANY, New Haven, Conn., have appointed the Henry B. Newhall Company, 105 Chambers street, New York, exclusive selling agents for all territory outside of New England. This mill is referred to as producing Wire manufactured for special purposes, and the high quality of the product is alluded to. The Henry B. Newhall Company state that such business as is now on their books will be cared for by the New Haven Wire Mfg. Company, who are in a position to make prompt shipments.

THE FIRM of Sigler, Woodward & Guyer, Wilmington, Del., was dissolved by mutual consent on the 20th inst., Mr. Guyer retiring from the business. The business will be continued by G. Sigler and G. S. Woodward, under the firm name of Sigler & Woodward.

HERMAN MAYER, Bradford, Pa., referring to the demand for samples of his Rubber Ice Creeper, announces that owing to the number of such requests he will be obliged, in the future, to ask that a remittance of \$1 accompany the order for each sample. We are advised in this connection that the manufacturer expects to be able to fill orders for these goods in the course of a few days.

CHARLES J. HEALY of 106 Chambers street, New York, has been appointed sole agent of J. I. Escher Sohn, Sonneberg, Thuringen, Germany, J. I. Escher Sohn are quarriers and manufacturers of the well-known German Water Hones.

AMONG the Special Notices in this issue is one in which an established jobbing and retail business in the Hardware, plumbing and machinery

line located in Albuquerque, N. M., is offered for sale to settle an estate. It is stated that the firm's goods are sold over Central New Mexico and Northern Arizona. It is also mentioned that the location is the best in the country for invalids suffering from pulmonary trouble.

CRYSTAL MILLS COMPANY, Chester, Mass., in their advertisement on another page call attention to their Flint, to the cutting qualities of which they allude. They state that they use only the hardest and sharpest ore, which they clean carefully and grade accurately. It is also stated that the Flint is shipped in paper lined barrels to prevent leakage in transportation. Prices, discounts and terms on the Flint are also given in the advertisement.

A. B. LAURENCE, manager of Shultz Belting Company, 41 Platt and 235 Pearl streets, New York, issues a calendar in colors for 1894, upon which attention is directed to Sable Rawhide Belting, Dynamo Belting, genuine Rawhide Lace Leather, Woven Leather Link Belting, Pulley Cover, Belt Dressing, Belt Cement, &c.

IN THE SPECIAL NOTICE COLUMNS will be observed an announcement by E. Bissell, Son & Co., 12 Murray street and 15 Park place, New York, relative to a peremptory sale of Hardware, Edge Tools, &c., on February 1. The goods thus disposed of will include Drawing Knives, Hatchets, Screw Drivers, Chisels, Hammers, Curry Combs, Files, Plumbs and Levels, &c., and also over 400 cases of Tacks and Nails manufactured by the Stanley Works. The announcement also calls attention to other sales on February 6 and 7, and February 13, 14 and 15.

THE DETROIT VALVE & WASHER COMPANY, 14-16 Macomb street, Detroit, Mich., are under the management of William Sherray, formerly secretary of the Daly Mfg. Company of that city. The goods manufactured by the company include Pump Leathers, Cup Leathers, Plumber Washers, Hose Washers and leather and fiber Axle Washers. The company advise us that they are equipped with the latest improved machinery for manufacturing these goods, thus largely increasing and cheapening their production. They have, we are advised, contracts with some of the largest pump manufacturers, who formerly ran their own tanneries and made their own leather.

J. H. ROBLEY, 142 Chambers street, New York, is sole agent in the territory covered by New York City, Long Island, Westchester and Rockland Counties, New York and the State of New Jersey, for the Ward & Doran Distance Thermometers, recently brought out by the Pullman Sash Balance Company. This company market the entire product in America and Europe. A stock of the leading numbers is carried at the office here.

IN ORDER TO MEET THE DEMANDS of their increasing business as importers of European Hardware, Painchaud, Squire & Co., Montreal, Canada, have decided to open a branch in Antwerp, Belgium. J. A. Painchaud and Mrs. Painchaud will sail from Halifax on the 27th inst., per steamship "Labrador," en route for Antwerp, where they will reside in the future.

THE NATIONAL WRINGER COMPANY, Canton, Ohio: Wringers. An illustrated price-list shows with descriptions the Erie, King, No. 77, Zenith, Prime, Columbia and Pittsburgh Wringers, Wringer Rack and Daisy Rat Killer. Particular attention is directed to the Erie and King Wringers, which have iron frames.

Prize Competition No. 28.

CLOSING FEBRUARY 17, 1894.

Subject: Bicycles in the Retail Hardware Store.

In this competition the sale of Bicycle accessories, such as Lamps, Bells, Tools, Tool Bags, Pumps, Lubricators, &c., is included in connection with Bicycles.

There is an evident tendency toward a largely increased sale of Bicycles through the Hardware trade, and this competition is announced for the purpose of obtaining suggestions as to the methods by which this line of business can most successfully be carried on by the retail Hardware merchant.

Those discussing the subject are free to treat it as they think best, but the following points are suggested as deserving attention:

- The feasibility and desirability of selling Bicycles and Bicycle Supplies in the retail Hardware store;
- The difficulties in the way and how they may be overcome;
- The extent of the assortment which the Hardwareman should carry;
- Whether he should confine himself to one line of Wheels;
- The best methods of stimulating the sale of these goods; and
- Whether it is necessary or desirable to have a repair department and how it may best be conducted.

The following prizes will be awarded:

First Prize,	-	-	-	\$25.00.
Second Prize,	-	-	-	15.00.
Third Prize,	-	-	-	10.00.

This subject is open to all.

In its discussion it is desirable that reference to particular manufacturers or machines be omitted.

We shall have the privilege of publishing any of the contributions received.

Contributions are to be received not later than February 17, 1894.

They should be addressed as follows:

DAVID WILLIAMS,

96-102 Reade Street,

New York.

Prize Competition No. 28.

Price-Lists, Circulars, &c.

SAMSON CORDAGE WORKS, 115 Congress street, Boston: Catalogue and price-list of Cordage. Their 1894 catalogue gives full and detailed descriptions of their Sash Cords, Bell Cord, Clothes Lines, Masons' Lines, &c. Attention is directed to several lines which have been added to their manufacture, among which are Samson Spot Cord and solid braided Chalk Lines.

HENRY DISSTON & SONS, Philadelphia, Pa.: Band Saws. A pamphlet is devoted to testimonials from those who have used Band Saws made from the company's special aluminum steel. This steel is referred to as being unexcelled for temper, tension and toughness.

BUHL, SONS & Co., Detroit, Mich.: Price current of spring and summer goods. Illustrations are shown of Forks, Potato and Manure Hooks, Hoes, Rakes, Lawn Rakes, Garden Rakes, Scythes, Scythe Stones, Lawn Mowers, Sap Spouts, Hair Clippers, Hay Tools, Sheep Shears, Shovels, Spades, Scoops, Refrigerators, Wheel-

barrows, Screen Doors, Window Screens, Spring Hinges, Steel Sash Pulleys, &c.

INTERCHANGEABLE TOOL COMPANY, Boonton, N. J.: Nippers, Pliers, Vises, Telegraph Pliers; Flat, Round Nose and Chain Pliers. These goods are illustrated with list prices in a circular, and the announcement made that interchangeable parts can readily be duplicated, thus avoiding the necessity of buying an entire new tool, in case of breakage.

CHILDS & JONES, Utica, N. Y.: Apparatus and supplies for cheese factories, creameries and dairies. The catalogue is devoted to Gates, Milk Cans and Tinware, Thermometers and dairy Glassware, Babcock Milk Test, Rubber Hose, Mops, &c., Scales, Brass Stencils, dairy books, Centrifugal Separators, Butter Print Carriers, Ladles, &c.

SIMMONS HARDWARE COMPANY, St. Louis, Mo.: Catalogue No. 225. devoted to Leader and Whitney Baby Carriages, Boys' Iron and Wood Wagons, Boys' Wheelbarrows, Siberia Refrigerators, Arctic and White

Mountain Freezers, Water Coolers, Filters, &c.

WILLIAM H. BROWN, Worcester, Mass.: Carders' Tools. A catalogue shows Card Ratchet, Lewis' Card Clamp, Kimball's Card Sheet Stretcher, Card Hammers, Card Gauge, Card Steel Marker, Scrapers, Card Cleaner Holder, Pick Counter, Lathe Center Grinder, Washer Needle, Card Tooth Pullers, Winch for winding filleting, &c.

GERMANTOWN TOOL WORKS, Germantown Philadelphia, Pa.: Hammers, Hatchets, &c. An illustrated price-list of 72 pages is devoted to Nail Hammers, Farriers' Hammers, Farriers' Pincers, Buttresses, Blacksmiths' Hand, Plow, Riveting, Engineers' Machinists' and Coopers' Hammers; Prospecting Picks, Shoe Hammers, Brick Hammers, Mill Picks; Lathing, Shingling, Half and Claw Hatchets; Broad, Hunters' and Boys' Axes; Cold Chisels, Coal Wedges, Sledges, Coal Picks, Mauls, Wedges, &c. Included in the foregoing are a large variety of new Hammers, Hatchets, &c.; also many new sizes of tools.

JOSEPH W. WAYNE, Cincinnati, Ohio: The Wayne Cork Filled Self Ventilating American Refrigerators. The 1894 price-list shows the operation of the ventilating system and of various styles of Refrigerators, Ice Chests, Sideboards, Butchers' or Market Refrigerators, &c. All the Refrigerators and Ice Chests, from the lowest priced to the highest priced, are filled, it is stated, with ground cork.

MUNGER COLTON MFG. COMPANY, 142 Lake street, Chicago, Hardware specialties. A catalogue illustrates Colton's Sliding Door Hangers, the Colton Junior Single Track Sliding Door Hanger, Columbia, America and United States Transom Lifters, Colton's Tool Holder, Colton's File Cleaner, American Hog Tamer and Colton's Key Ring Screw Driver. The company state that their facilities have recently been materially increased, and that they purpose adding to their line from time to time other new specialties.

GRAND RAPIDS REFRIGERATOR COMPANY, Grand Rapids, Mich.: Leonard Cleanable cold dry air Refrigerators. Their 1894 catalogue illustrates in colors Leonard Refrigerators in the Excelsior and plain lines; Apartment House, Grocers' Buffet, Sideboard, Sideboard and China Closet Refrigerators. An addition of a lining of charcoal sheathing has been made to the charcoal filling; the line of Refrigerators has been remodeled to make it more artistic and ornamental; rich carvings in the solid wood have been added to the Excelsior line; also solid real bronze hinges. The plain line now has the surface hinges which were used on the carved line. Attention is directed by the manufacturers particularly to Creamers for the care of milk in city families, sideboards combined with Refrigerators, china closets with Refrigerators beneath, Grocers' Refrigerators, which are referred to as closed when open and an improved trap which, it is stated, does not fall off the waste pipe.

THE HURD REFRIGERATOR COMPANY, Duluth, Minn.: Refrigerators. Illustrations are given of the Hurd system of circulation as employed in their Refrigerators, their patent glass trap, and of soft wood and hard wood Refrigerators, Sideboard Refrigerators, grocers' Ice Chests, Fish Boxes, Sideboard Water Coolers, &c. The manufacturers state that their designs for this year are new and are in keeping with the latest and best style of furniture, and that their goods are filled as follows: Next to the outer wall, and also next to the inner wall, are placed layers of odorless paper; the space between these layers of paper is filled

with mineral wool, as the best non-conducting substance.

F. S. ANDERSON COMPANY, Richmond, Ind., succeeding Dille & Anderson: Lawn Mowers. Illustrations are given of the following Mowers: Ball Bearing, Paragon, Yale, Best High Grass, Columbia and Best.

Bicycles for 1894.

SIXTH ARTICLE.

H. A. LOZIER & CO., Cleveland, Ohio, are listing their 1894 machines from \$110 to \$165. The line includes the following wheels: Cleveland No. 11, weight 25 pounds, list \$150; Cleveland No. 8, weight 27 pounds, list \$135; Cleveland No. 10, ladies' wheel, weight 30 pounds, list \$125; Cleveland No. 9, weight 30 pounds, list \$125; Cleveland No. 7, weight 32 pounds, list \$110, and Cleveland racer No. 12, weight 20 pounds, list \$165. In general details the No. 7 will be similar to the No. 4, 1893 pattern. It will have $1\frac{1}{4}$ canvas tires, Clincher steel rims, same as were used in 1893; 63 round gear, put up stripped unless otherwise ordered, when extra price will be charged for mud guards, brakes, &c. In general points of construction the wheel will be identical to those heretofore; all ball bearings dust proof; material and workmanship guaranteed. The No. 8 will be similar to their 1893 pattern No. 6, modified somewhat, however. It will have the regular Cleveland thread tire, Clincher steel rims, 68 gear, narrow drop bar, scorcher saddle, &c. The machine will correspond with the No. 6 of 1893. No. 9 is an entirely new machine, with the general lines similar to '93 No. 4, but the detailed construction is changed considerably. This will have the thread tires and steel rims, drop or raised narrow bar, hollow saddle post of the loop or L pattern, new saddle, either scorcher or style similar to the regular No. 4. It will be finished with either rubber or rat trap pedals, and flat or round fork. The new features of construction in this wheel for 1894 include new frame construction, rear chain adjustment, steering head entirely new, chain and sprocket wheel construction also greatly improved. In No. 10, their new model ladies' wheel, special changes and improvements for 1894 include shorter wheel base, shorter frame head, machine fitted with 26-inch wheel, $1\frac{1}{2}$ -inch thread tires, steel Clincher rims, 56 gear, narrow raised handle bar with detachable brake, solid loop post, special saddle of new design and narrow rubber pedals. The machine fitted complete with all attachments, mud and dress guards complete, weighs about 30 pounds. No. 11 is an entirely new machine, similar to the No. 8, with the following advantages: Very narrow tread and the wheels supplied with the new combination wood and steel rim. The machine will be put up stripped to weigh about 25 pounds, and will be fitted with special saddle post, which will enable the saddle to be placed directly over the pedals if necessary, or further back in scorcher position. The No. 12 will be similar to the No. 11, fitted with new Cleveland racing thread tire, cemented into wooden rim. The tire will have an inner tube, removable by means of unlacing.

THE ROYAL CYCLE WORKS, Marshall, Mich., will make but two styles of wheels for the coming season: The Royal Limited and Royal light roadster, both of which list \$125. The Limited will have 28 rear and 30 inch front wheels, and will weigh from 25 to 30 pounds, according to styles of tires and rim fitted. The light roadster will have the same wheels and will weigh about 5 pounds heavier, all on.

The frames are of desirable height at the seat post for the average rider, the tube being $21\frac{1}{4}$ inches long, while the head is $10\frac{1}{2}$ inches long from ball track to ball track. They also make an extremely high back frame for tall riders. All wheels are regularly fitted with steel rims, but wood rims will be fitted when ordered. A special racer is built to order only, weighing from 15 to 20 pounds, listing \$160.

AMES & FROST COMPANY, Chicago, will make four models of Imperial wheels for 1894, as follows: Model J, regular road wheel, weighing 32 pounds; Model K, the same as J, with mud guards and brake off; Model M, the same frame with wood or light metallic rims, light road tires and saddle, weighing 27 pounds; and Model N, regular racer, weighing 23 pounds. The company state that the wheels are as fine as it is possible to make them, with all improvements on and everything up to date. The company are appointing Hardwaremen as agents quite extensively this year, as they think them the best to handle this line of goods.

THE PEERLESS MFG. COMPANY, Cleveland, Ohio, will have four models of the Triangle, listing from \$125 to \$150, as follows: Model C, full roadster; scale weight, all on, 31 pounds, stripped 28 pounds, listing with steel rims and cement tire \$125; with patent detachable tires \$135; Model D, ladies' wheel, weighing 30 pounds, listing \$125; Model E, road racer, weight 25 pounds, listing \$135; and Model F, track racer, weight 18 pounds, listing \$150. The Model C is adapted to all classes of riders, and is designed to be sufficiently strong for any weight over the roughest roads. The tread from outside to outside of cranks is 6 inches. In the ladies' wheel, Model D, particular attention has been directed toward obtaining perfect rigidity of fork ends to crank hanger, and from there to the head; also to provide ample dress space and an easy, graceful position. For purposes of road racing for experienced riders who insist upon a light wheel, and for especially light weight persons, Model E is recommended by the makers. Unless otherwise ordered, it will be fitted with wood rims, rat trap pedals and a scorcher saddle. Model F, the track racer, weighs 18 pounds and has a tread of $5\frac{1}{4}$ inches.

SINGER & Co., Boston, Mass., will have three machines under the general name of Challenge: Light roadster, ladies' and roadster, listing respectively \$125, \$135 and \$135. The ladies' Challenge is a new pattern, embodying as many recent and patented specialties as the gentlemen's pattern, which has been remodeled, improved in detail and lightened since last year. These goods are referred to as being light, strong, highly finished, and as made of the best material that can be produced. The Velociman, a high grade Tricycle for cripples, is practically the same as last year. Under the class of Modèle de Luxe are the roadster, ladies', light roadster and tandem safety. This line is designed to meet the demands of the class of riders who want elegant and desirable wheels, being of superfine finish and detail work. The Singer high safety is a new pattern, designed for the greater comfort of the tourist, being a cleaner machine for use in all sorts of weather.

O. J. FAXON & Co., Boston, Mass., offer Puritan Cycles for the coming season as follows: Roadster, Model C, weight 32 pounds, listing \$100; full roadster, Model A, weight 36 pounds, listing \$105; scorcher, Model D, weight 27 pounds, listing \$110; ladies', Model E, weight 30 pounds, listing \$115; and road racer, Model F, weight 22 pounds,

listing \$115. The manufacturers remark that the reduction in prices will in no wise interfere with their giving the very best quality of manufacture to their patrons. All the gentlemen's machines have improved high diamond pattern frames except Model A, which is made with improved diamond pattern frame. The ladies' Puritan has an improved double tube pattern frame. The manufacturers state that in constructing their 1894 models they have carefully observed all points where improvement could be made, in the way of materials, correct line of construction, workmanship, ease of riding motion, &c.

HULBERT BROTHERS & CO., New York, offer a line of Majestic wheels for '94 as follows: No. 3 Majestic light roadster, weighing, all on, 35 pounds, stripped, 32 pounds; listing with steel rims, \$85. No. 4 light roadster, weighing, all on, 33 pounds, stripped, 30 pounds; listing with steel rims, \$90, or with wood rims, \$95; and No. 5 Ladies' light roadster, weighing 35 pounds; listing with steel rims, \$95, or with wood rims, \$100. All Majestics are made from best weldless steel tubing and steel drop forgings, all parts made to gauge and interchangeable. For 1894 the wheels are all striped in blue and gold, giving a handsome appearance to the machines. The new combination pedals combine rubber and rat trap features. They may be changed from rubber to rat trap by taking out a screw in the front of the plate, thus allowing the rubber to be removed. The change can be made in a moment, at the pleasure of the rider. The coasters are of such design that they clamp to the forks, not slipping down, and can be folded up when not in use. The detachable handle bar lug can be taken off, so that when the machine is stripped there is nothing to show that it had been used with a brake. All wheels are fitted with Majestic model Clincher tires, made by the Columbia Rubber Company. The combination saddle is manufactured by the Garford Mfg. Company, under patents of Hulbert Brothers, and is made of a fine quality of leather, molded to an approved form, and when wet may be allowed to dry without artificial heat, thus, it is stated, retaining its true shape. The extra spring to be used with the saddle may be taken out, thus reducing it in weight to a scorching saddle.

The Shaw, Kendall & Co.'s Catalogue.

THE SHAW, KENDALL & CO., Washington and St. Clair streets, Toledo, Ohio, have issued catalogue A No. 3, containing 393 pages, devoted to Plumbers', Steam Fitters' and Gas Fitters' supplies. A full page view is given of their shipping department, offices and general stores; also of their works at Auburndale. Following there is an alphabetically arranged index requiring nearly eight pages of the catalogue, which is about 10 x 12 inches in size. For greater convenience the various lines of goods are classified under sections, as follows:

Section A: Plumbers' Brass Work, Bibbs, Stops, Compression Work, Ground Key Work, Fuller Work and Self Closing Work.

Section B: Hopper and Cistern Valves, Basin, Bath, Wash Tray Plugs and Grates, Chains and Stays, Basin Clamps, Rubber Elbows and Connections, Boiler and Water Back Couplings, Traps and Ferrules, Range Boilers, Iron and Steel Sinks, Lead Pipe and Metals, Brass Fittings. Service Boxes for gas and water, Hydrants and Street Washers and Tapping Machines for water mains.

Section C: Soil Pipe and Fittings,

Iron Traps, Greenhouse Fittings, Drainage Fittings, screwed; Iron Hoppers and Urinals, Urinal and Privy Sinks, Urinal Stalls, Urinal Hoods, Connections, &c.; Plunger and Pan Water Closets, Iron Wash Stands, Basins, &c.; Wash Trays, Iron, Stone, Slate, &c.; Marble Slabs, Basin, Floor, Drinking, &c.; Copper Bathtubs, Hip Tubs, Bidets, &c.; Bathtubs, iron, steel, fiber; Wilkes, Douglass and New Era Heaters.

Section D: Earthenware, Basins, Closets, Urinals, &c.; Lavatory Work, Brackets, Legs, Trimmings, &c.; Plumbers' Wood Work, Pumps, House and Hand Force, Pitcher, &c.; Motors, Hydraulic; Hose, garden and fire; Hose Pipes, Reels, Racks, &c.; Lawn Sprinklers, Plumbers' Tools, Pumps and Furnaces.

Section E: Steam Fittings, &c. Section F: Steam and hot water House Heaters, Radiators, Coils, &c.; Gas Fixtures and Fittings, &c. These goods are all illustrated, with list prices, well arranged, showing that much labor and expense have been devoted to the work. The catalogue is substantially bound in cloth and will be appreciated by the trade.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

White Lead.—The irregularity in prices and generally uncertain condition of affairs referred to last week remains in force and a brief definition of the situation that would cover the whole ground is practically out of the question. The one prominent feature is that the very low cost of crude material enables the independent corrodors and manufacturers of various lines of so-called cheap White Lead to take the aggressive position and name prices that look exceptionally low when contrasted with the list rates quoted by the National Lead Company. Not only that, but buyers are more than ordinarily discriminating, yet very much in favor of giving the cheap goods a more thorough test than ever before, because of the wide margin between the cost of old process White Lead and current market value for crude material and the remarkable difference between quotations for National Lead Company brands and the product of independent concerns. Thus some of the outside producers have put their price for Dry Lead to as low as 4¼¢, delivered here, less usual discount for cash, or about ½¢ under net prices as quoted in the formal combine circulars. Where extremely low rates were made business has been stimulated in some degree, but the general movement is backward, and the market remains bare of redeeming feature.

Red Lead.—While not as lively as in the instance of White Lead, the competition in this line continues sufficient to keep prices variable, and outside brands are quite freely offered at ¼¢ @ ½¢ under the list rates quoted by the combine. This "cut," it is also claimed, is being met by some means or other by the National Company. Meanwhile, foreign brands are being freely offered and at prices that tend to complicate the situation in some degree.

Colors.—Hardly any change has taken place in the market for dry Colors. In fact, there is really no change aside from special or "cut" prices where inducements of the kind may tend to facilitate business. Oil Colors are steadier because of the

stronger position of the Linseed Oil market, but prices have thus far undergone no change whatever.

Oils and Turpentine.

Linseed Oil.—The price of domestic raw material has advanced considerably during the period under review. The rise is 4¢ @ 5¢ ½ bushel. This has excited some interest on the part of large buyers, yet failed to stimulate business in any marked degree. While buyers fail to be influenced, the crushers have made the most of their opportunity and parted with as little stock as possible. Back of the advance in cost of raw material there has been the influence of more harmonious action by late conflicting interests in the market for the purpose, doubtless, of carrying prices to a higher plane. City crushers have advanced their prices to 50¢ for Raw and 53¢ for Boiled Oil made from American seed, but continue the old rate of 62¢ for Raw Oil made from Calcutta seed.

Cotton Seed Oils.—Prices have weakened somewhat since the fall in the price of Lard has curtailed the demand from a very important source of home consumption, while the export demand has dragged in an exceptionally slow degree. The depression in values is easily measured, however, and does not appear to go beyond limits that are common in a season of inaction. Prices at present are on the basis of 30¢ @ 31¢ for prime Crude, 35¢ @ 36¢ for prime Summer Yellow, with corresponding figures for other varieties, spot and near future delivery.

Lard Oil.—In the cost of raw material there has been somewhat wide fluctuations the past week, the tendency of which, upon the whole, was to lower the prices of Oil. It seems, however, that city pressers have kept well within their previously adopted policy of regulating output by the run of orders. They have, in the meantime, encountered no serious competition from out of town concerns. Hence prices remain very steady at 70¢ @ 72¢ for prime present make, in the face of decidedly slow business.

Fish Oils.—There is no change whatever in the condition of the market for crude Sperm or crude Whale Oils, since hardly any business has been effected, while the demand has continued remarkably slow. The pressed and bleached Oils have met with merely routine demand and the sales made were chiefly at old prices. There has been no movement in crude Menhaden Oil, but substitutes, such as Herring Oil, have received more attention and taken the place of Menhaden Oil to no small extent. According to official data there are only 12,450 barrels of crude Menhaden Oil in first hands, but this is much above the average held a year ago and indicates that the use of substitutes during the past six months is an important factor.

Miscellaneous.—There has been livelier business in common Olive Oil for future delivery. Several hundred barrels were sold at about 55¢. Spot parcels also met with better sale, and realized about 60¢. The entire movement, however, was only of fair volume for the season. Coconut Oil has been somewhat irregular in price, but shows no radical change. There is the usual variety of reports from the foreign markets, mostly timed and worded for effect, otherwise there is no speculation. There has been no change in Neatsfoot, Tallow or Red Oils.

Spirits Turpentine.—Prices have receded about ½¢ ½ gallon, and the market at this writing is rather soft, with the demand exceedingly tame. It is easy to purchase wholesale quantities at 30¢ in regular and 30½¢ in machine barrels.

Majestic Specialties.

The illustrations herewith given represent specialties used by Hulbert Bros. & Co., 26 West Twenty-third street, New York, on their 1894 Majestics. The

Blumer's Hand Crimper.

Peck, Stow & Wilcox Company, 27 Chambers street, New York, are marketing the hand crimper here shown. It has been brought out largely for use

drop into any one of three degrees of pressure provided for, the tool is ready to crimp. This is accomplished by pressing the handles together, revolving the gears two teeth at a time. The coil spring simply raises the upper handle after being pressed down. The

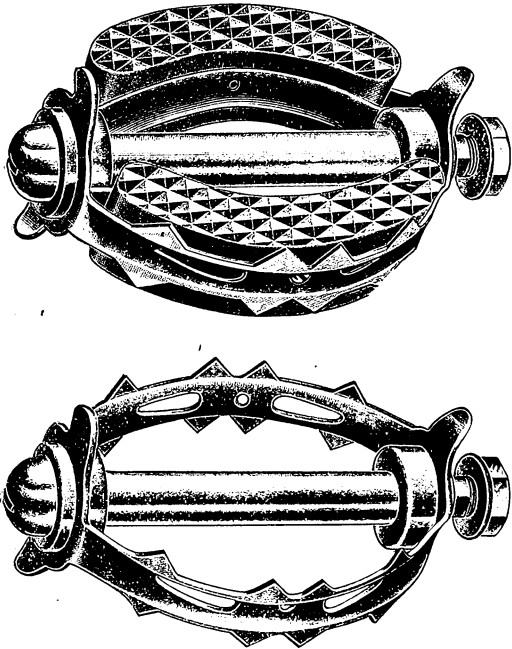


Fig. 1.—Combination Pedal.

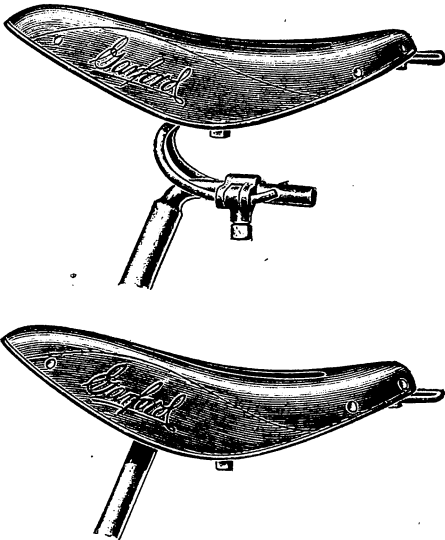


Fig. 2.—Combination Saddle.



Fig. 4.—Detachable Handle Bar Lug.

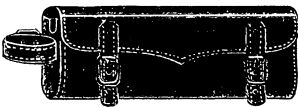


Fig. 5.—New Tool Bag.

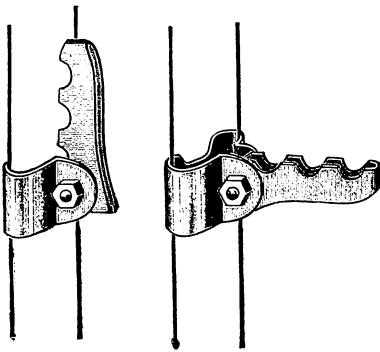


Fig. 3.—Folding Coasters.

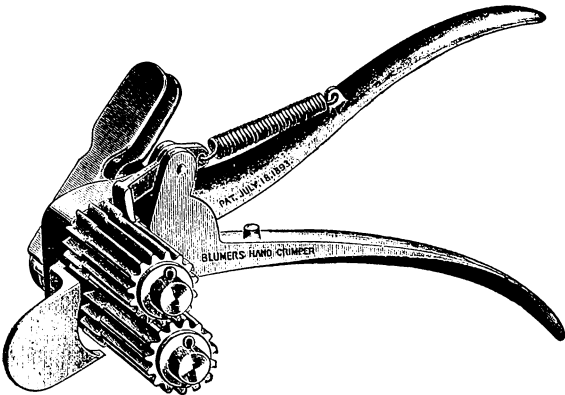
combination pedal, Fig. 1, is changed from rubber to rat trap by taking out a screw in the front of the plate, the change being made rapidly and easily. The combination saddle, Fig. 2, which is made for them under their own patents by the Garford Mfg. Company, is of fine leather, molded to the approved form, allowing it when wet to be dried without artificial heat, thus retaining, it is stated, its true shape. The extra spring used with the saddle, as in the upper of the two illustrations in Fig. 2, can be taken out, thus reducing the saddle to a light scorching saddle, as in the lower illustration. It is remarked that having three hoops on the front of the leather there is no danger of its breaking away. The coasters, Fig. 3, are so arranged as to fold up when not in use. The detachable handle bar lug, Fig. 4, may be taken off; thus nothing is left on the handle bar to mar its appearance. It is stated that the construction of the crown forging is such that when the machine is stripped nothing is left to indicate that the machine has been used with a brake. The tool bag, Fig. 5, is made of black leather and always remains attached to the machine, preventing it from falling to the ground.

The Franklin Institute of Philadelphia completed the seventieth year of its existence on January 17.

by the tinner or sheet iron worker, especially when out on a job or away from the shop where crimping in quantities is usually done with a machine. It will be found convenient for crimping leader or stove pipe. It is 7½ inches long over all, with gears ¾ inch in diameter and 1½ inches long. Beyond

gauge at the end is a part of the upper handle and perfectly rigid.

As an illustration of the growing importance of the telephone as a means of communication it is noted that the business of Louisville, Ky., was re-



Blumer's Hand Crimper.

the gears is a cam lever with ratchet, by means of which the gears are separated so the metal can be inserted. By raising the lever and permitting the pawl to

cently impeded to a serious extent by the destruction of the telephone exchange in that city, when the switch board with 3000 wires was burnt out.

Card's Improved Screw Plate.

The accompanying illustrations represent a screw plate recently brought out

Double Adjustable Tracing Wheel.

The Union Mfg. & Plating Company, Freeport, Ill., are putting on the mar-

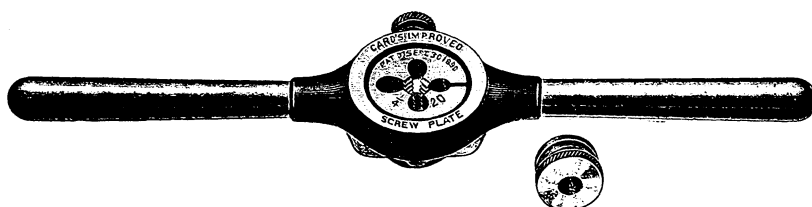


Fig. 1.—Card's Improved Screw Plate.

by S. W. Card & Co., Mansfield, Mass. The principal feature of the plate, it is stated, is its simplicity. The die, as

ket the tracing wheel shown in the accompanying cut. The shaft carrying the movable wheel acts also as the shaft

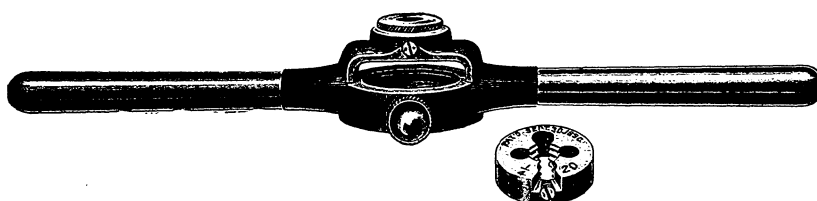


Fig. 2.—Showing Die Detached.

shown in place in Fig. 1 and detached in Fig. 2, is adjusted by a tapering screw, acting as a wedge, the

for the first wheel, upon which it revolves freely. The shank is of flat steel, and inserted in the handle with the

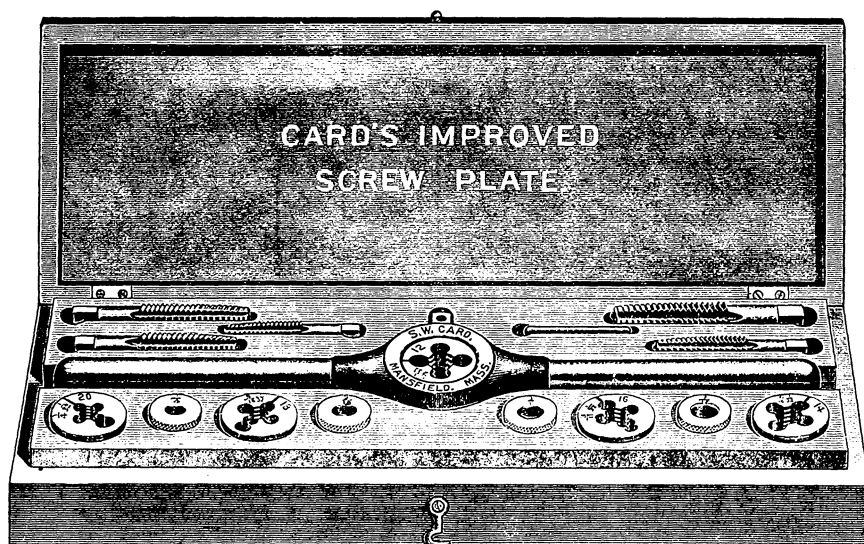
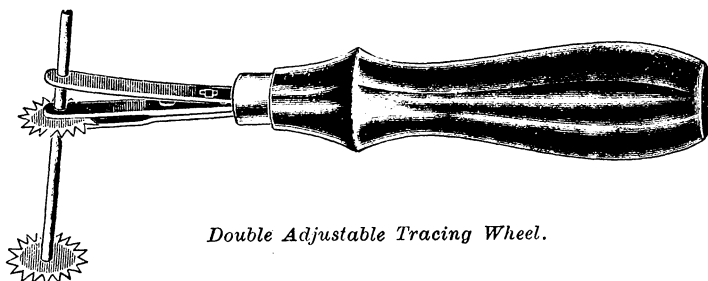


Fig. 3.—As Put up in Hardwood Boxes.

side of the die being cut open and tapped out to receive the screw. The plates are provided with steel guides

shank is a flat steel spring with a hole in the other end, through which the shaft slides and binds when in use. It



Double Adjustable Tracing Wheel.

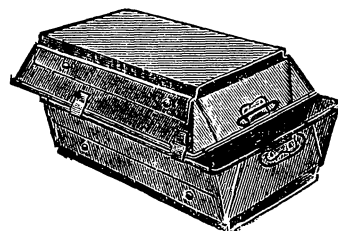
and steel screws. Two different sets are put up in hardwood cases, as shown in Fig. 3—No. 100 and No. 100 A—and are furnished $\frac{1}{2}$ over size for rough iron, unless otherwise ordered.

is remarked that a slight pressure of the finger instantly releases the shaft, allowing the required adjustment to be made. The tool is full nickel plated, with black enameled handle. The point is made

that the tracers are adjustable without the aid of thumb screws, which are apt to be lost by dealers and consumers.

The Ressler Roaster and Baker.

Will & Weber, 420-422 St. Clair street, Toledo, Ohio, are putting on the market a roasting and baking pan, as shown in the cut herewith. The pan comprises two like sections, with flaring sides, held together with a novel form of hinge connection, which also allows the upper pan to be slid



The Ressler Roaster and Baker.

upon the lower pan, as shown in the cut, when it is desired to brown the article of food being cooked. There is also a double or extra bottom on each pan, which can be removed by sliding, which is designed to modify the heat of the oven in its effect upon the article within the pan, to give a uniformity of temperature during the process of baking or roasting, and to avoid all danger of burning or drying. It is pointed out that as the pans are exact duplicates the wear of the two pans is insured, as they may be reversed in position or may be used singly for other purposes; also that the detachable hinge makes it easy to secure the pans in position or to detach them.

Enterprise Coffee, Spice and Drug Mill.

The Enterprise Mfg. Company, Philadelphia, Pa., are introducing the mill here shown. It is 16 $\frac{1}{2}$ inches long, cup included, 7 $\frac{1}{2}$ inches wide, 6 $\frac{1}{2}$ inches deep, and weighs, complete, 17 pounds. It is designed to attach to a post or



Enterprise Coffee, Spice and Drug Mill.

wall and is readily detached when desired. The mill is designed to meet the demand for a mill of large size for use in hotels, lumber camps, boarding houses, on steamboats and for other places where economy in space is requisite. The makers state that for power and speed, the degree of fineness of grinding being the same, it is equal to their No. 5 mill, but, should finer grinding be desired, that it equals in all respects their pulverizers from Nos. 00 to 4 inclusive. The mill is handsomely japanned, ornamental in appearance and will be known as No. 350.

Sterling Bicycle Specialties.

The cuts here shown are of specialties used by the Sterling Cycle Works, Chicago, on their 1894 machines. The

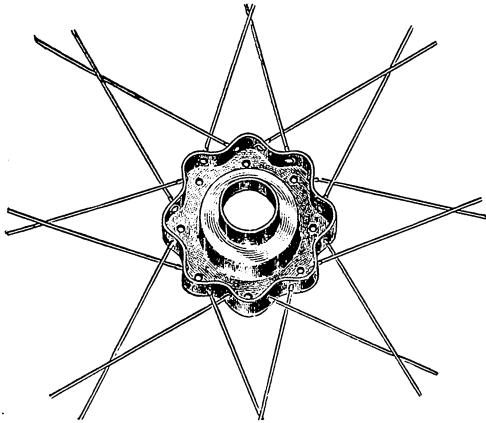


Fig. 1.—Corrugated Hub.

hub, as shown in Fig. 1, is corrugated, allowing a direct spoke to be tangent, and so lapped to the other spokes, it is

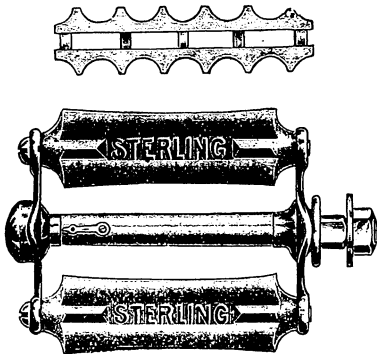


Fig. 2.—Convertible Pedal.

stated, as to greatly increase the strength of the wheel. It is explained that the spoke, being direct, makes a straight

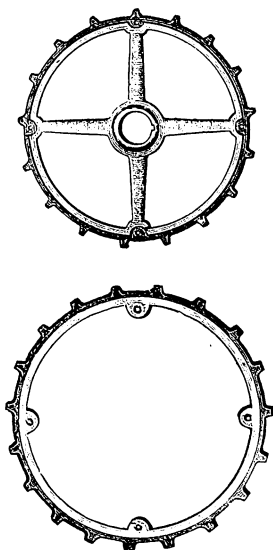


Fig. 3.—Interchangeable Sprocket.

pull, which allows of a larger wire being used, as there is no bending of the spoke whatever, as all bending disturbs

the fiber of the wire. The convertible pedal, Fig. 2, is referred to as entirely dust proof and as allowing a change to be made very quickly from rubber to rap trap, or *vice versa*, at the pleasure of the rider. The interchangeable sprocket, Fig. 3, consists of an outer ring with four lugs which fit into depressions on the sprocket wheel and is held in place by four screws. The point is made that the strain comes on the lugs

of machine steel. The single screw head, Fig. 1, is adjustable to center any thickness up to 8 inches; while in the double screw head, Fig. 2, the upper screw is adjustable up to 8 inches and the lower screw up to 4 inches, the screws adjusting separately. For special work back stop brackets are provided. The beam of the clamp horse is made of two pieces of hard maple, 2 x 5 inches for the single and 2 x 8 inches for the

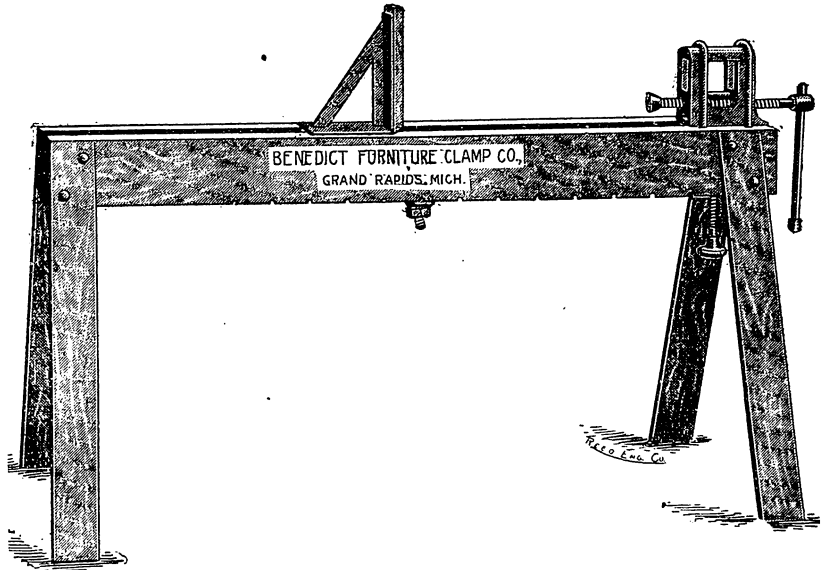


Fig. 1.—Single Screw Clamp Head.

and not on the screws, that a rider can have either a 60 or 67 gear to use and that by putting an extra link in the chain the gear is changed without adjusting the wheels or bearings.

Adjustable Steel Screw Clamp Heads.

Benedict Furniture Clamp Company, Grand Rapids, Mich., are introducing adjustable steel screw clamp heads

double screw head, with a space between to allow of adjusting the back stop bracket. The horse will open 6 feet in the clear, and used in pairs the legs of one horse will set between those of the other, when it is desired to bring the bars close together.

J. H. STEWART & Co., Blair, Neb., send out a neat folder, entitled "A Chat With Our Friends," soliciting their trade during 1894 and giving an

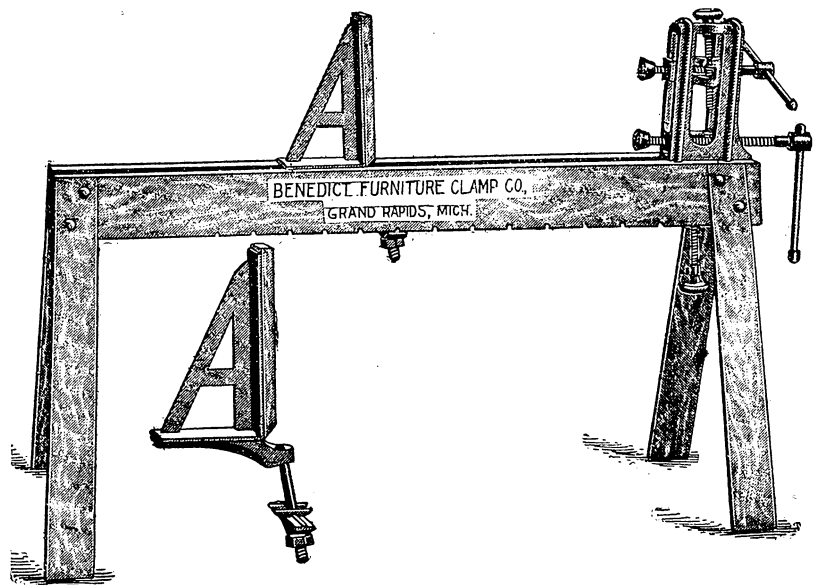


Fig. 2.—Double Screw Clamp Head.

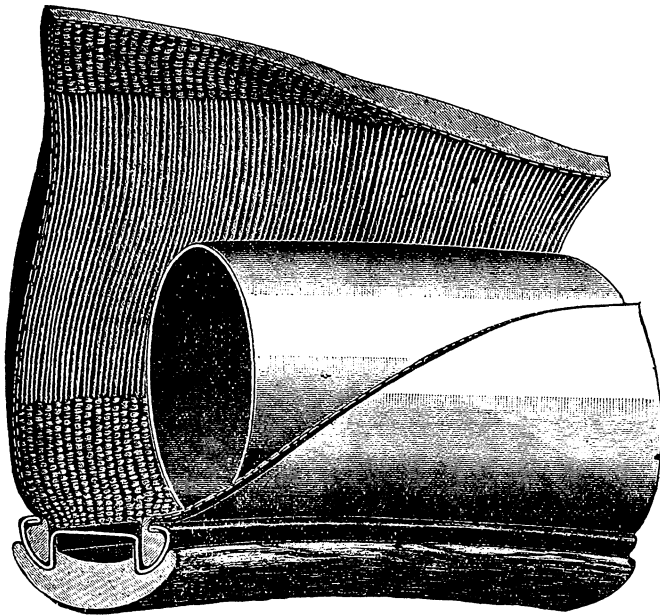
with improved back stop bracket and clamp horses, as shown herewith. The heads are made of heavy castings bound with bands of wrought iron extending through the beam of the clamp horse. The screws are $\frac{7}{8}$ inch in diameter, made

outline of their plans for the coming year. Among other things the company state that they will do a greater business at a reduced profit rather than be contented with lesser sales and higher profits.

Combination Rim and Threaded Tire.

The accompanying cut represents the Cleveland combination wood and steel Clincher rim and threaded tire, as introduced by H. A. Lozier & Co., Cleve-

land, Ohio. The wood rim is composed of one continuous piece, with extra long glued joint. Into this rim are countersunk steel washers, shaped to give the best possible bearing for the nipple, so as to absorb the riding strain and vibration by the wood rim. The steel rim outside the wood rim is made from one piece of steel, doubled completely over on the edges to prevent the cutting of the tire, the raised center taking the place of the inner rim of the all steel construction. Between the wood and steel rims an insertion of special material is used to preserve the wood rim by preventing water or foreign substances from getting in between. The manufacturers state that in this combination they have a fine construction, both as to durability and appearance. In the tire longitudinal threads have been omitted from the thread portion. It is explained that the transverse threads remaining support the tire perfectly and prevent its flattening, and at the same time do not detract in any way from the resiliency and elasticity of the rubber and of the confined air. The object in making the tire in this way, it is stated, is to allow small obstructions to be completely absorbed, when the internal pressure of the air will instantly expel them. It is pointed out that when passing over a larger obstruction a prolonged depression is not caused, there being no lengthwise threads to carry the effect of the obstruction beyond the point of contact, and that there is no wearing action from the crossing of strands or threads, as in the case where a woven fabric is used in the tread portion of the tire.



Combination Rim and Threaded Tire.

land, Ohio. The wood rim is composed of one continuous piece, with extra long glued joint. Into this rim are countersunk steel washers, shaped to give the best possible bearing for the nipple, so as to absorb the riding strain and vibration by the wood rim. The steel rim outside the wood rim is made from one piece of steel, doubled completely over on the edges to prevent the cutting of the tire, the raised center taking the place of the inner rim of the all steel construction. Between the wood and steel rims an insertion of special material is used to preserve the wood rim by preventing water or foreign substances from getting in between. The manufacturers state that in this combination they have a fine construction, both as to durability and appearance. In the tire longitudinal threads have been omitted from the thread portion. It is explained that the transverse threads remaining support the tire perfectly and prevent its flattening, and at the same time do not detract in any way from the resiliency and elasticity of the rubber and of the confined air. The object in making the tire in this way, it is stated, is to allow small obstructions to be completely absorbed, when the internal pressure of the air will instantly expel them. It is pointed out that when passing over a larger obstruction a prolonged depression is not caused, there being no lengthwise threads to carry the effect of the obstruction beyond the point of contact, and that there is no wearing action from the crossing of strands or threads, as in the case where a woven fabric is used in the tread portion of the tire.

Myers' Hydraulic Spray Pump.

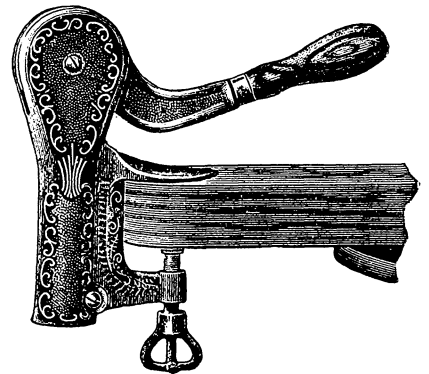
F. E. Myers & Brother, Ashland, Ohio, are introducing the pump shown herewith. The pump is described as being made of brass with a solid plunger and good leverage, and as equipped with the latest improved brass suction and retaining valves, which are of the regular construction and will be

readily understood and are easy of access should they become disarranged from any cause. The air chamber is provided with two discharge valves of the Jenkins pattern, arranged to use one or both of the sprays at a time. The discharge valves are fitted with hose nipples, with

charged to the pump's greatest capacity it will throw an even, strong spray for doing quite an amount of spraying before it again requires recharging, and that the pressure can be increased by pumping air into the air chamber instead of water, thus enabling the operator to use all the material out of the air chamber. The manufacturers state that the construction of the pump throughout is the best to meet the demands for a pump where spraying is done on a large scale, in a rapid manner and with a pump that will put on sufficient pressure to throw an even, fine and elastic spray.

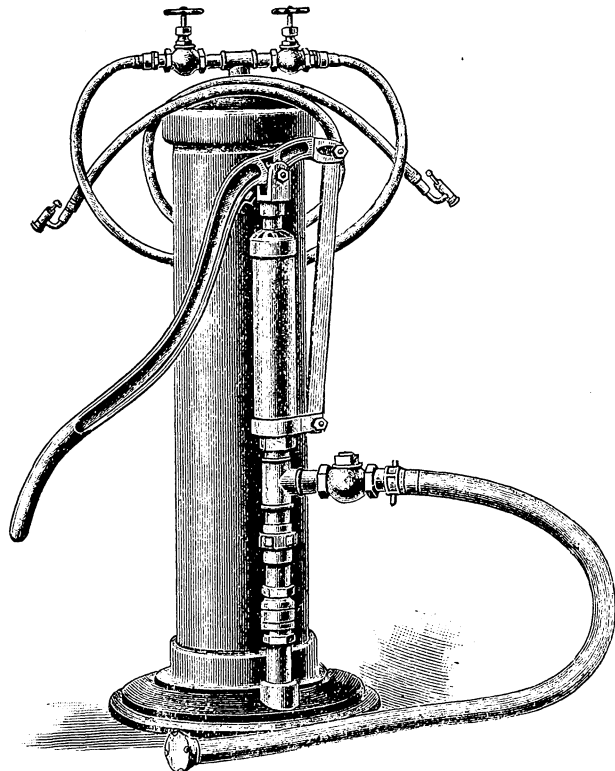
The Arcade Cork Extractor.

The Union Mfg. & Plating Company, Freeport, Ill., are offering a cork ex-



The Arcade Cork Extractor.

tractor, as illustrated herewith. The extractor is adapted to fasten securely to a table or shelf, and in operation one



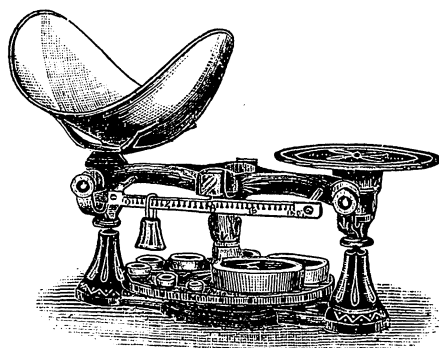
Myers' Hydraulic Spray Pump.

forward stroke of the lever draws the cork from the bottle; while reversing the lever discharges the cork from the screw, leaving the lever in position for another operation. It is explained that the extractor is constructed without gearing, which is liable to get out of order and to cause trouble; also that

with this device there is absolutely no danger of breaking the bottle, as the cork is drawn from the bottle instead of forcing the bottle away from the cork. The extractors are finely finished, nickel plated, and are packed one each in a substantial wooden box.

I X L Scale.

The Southwark Scale Company, 415 South Second street, Philadelphia, Pa., are putting on the market the scale shown in the accompanying illustration. The standard is of iron and the pivots of fine tool steel. The weight holder is of iron and revolves in either direction, thus bringing the weights instantly to hand and obviating the necessity of a weight block. The beam



I X L Butcher Scale.

is of brass and the pea weight of iron painted. The weights are supplied in iron or brass, as desired. The scale is handsomely painted and decorated and is made in three styles, counter and butcher scales without beams, and butcher scale with beam, as illustrated. The counter scale is supplied with any kind of scoop required. The scale is made in sizes running from 2 pounds to 16 pounds, and is designed to meet the demand for a cheap and reliable scale.

Copy Book Holder and Letter Rack.

The accompanying cuts represent the Eureka copy book holder and the

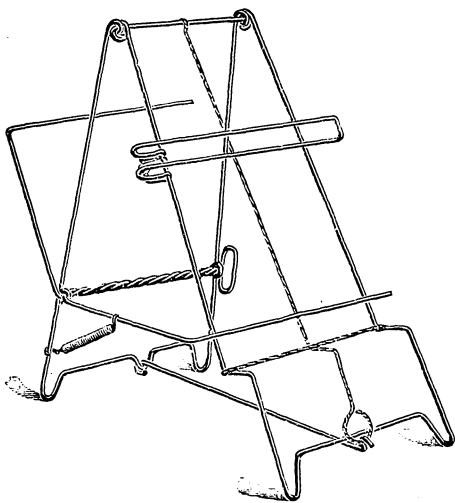


Fig. 1.—Eureka Copy Book Holder.

Acme wire letter rack, which are being put on the market by the Cincinnati Mfg. Company, Cincinnati, Ohio. The arms of the copy book holder, Fig. 1, clasp the leaves in front and rear,

and the line indicator throws them back. The holders, it is stated, are made to fold and are handsomely finished. The Acme wire letter rack, Fig. 2, has spaces above and below the center. The space above is most con-

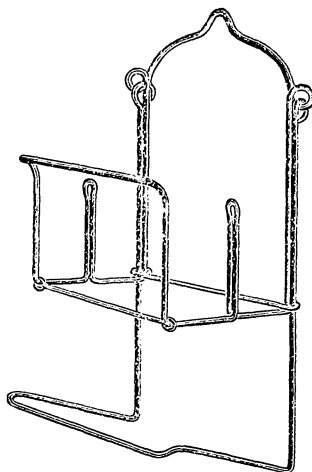
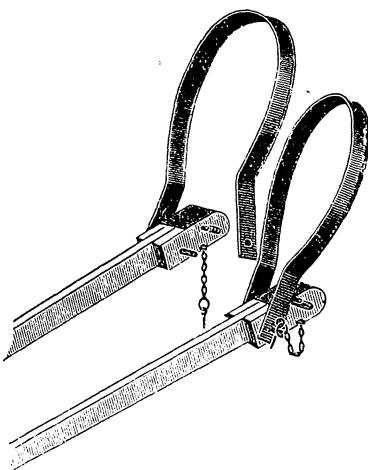


Fig. 2.—Acme Wire Letter Rack.

venient for letters, catalogues, &c., and the lower space is used for packages, &c. When desired, the lower space is made with mesh work on the back and bottom, to prevent small packages from getting lost. The rack is made of bright plated wire, and is referred to as having advantages over the older style of tin boxes, as it can be used for papers and packages as well as for letters.

Improved Steel Monarch Animal Poke.

A. W. Bishop, Berea, Ohio, is introducing an improved steel animal poke, as shown herewith. It is de-



Improved Steel Monarch Animal Poke.

scribed as having a mulay head iron bound, steel pin, and 11-gauge steel bow, this being more than twice the thickness of the steel used in the bow last season. The bow is also tempered, which was not previously done; while the shape has been improved, and it is provided with a secure, convenient fastening. It is stated that the mulay head incloses and protects all working parts from damage by rough handling in shipping or in use. The pokes are warranted by the manufacturer for 30 days in the field against breakage.

Improved Firm Joint Calipers.

The accompanying cuts represent firm joint calipers, which are being manufactured by L. S. Starrett, Athol, Mass. The improvement in the calipers is described as consisting in the construction of the joint, which is so made as to be drawn together by means of a screw forcing a washer on to a

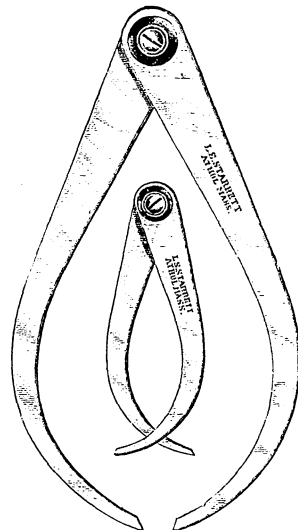


Fig. 1.—Improved Firm Joint Calipers No. 26.

squared end of the main rivet which extends through the legs, thus clamping them together between bearings so shaped as to insure a smooth and uniform friction, of more or less tension,

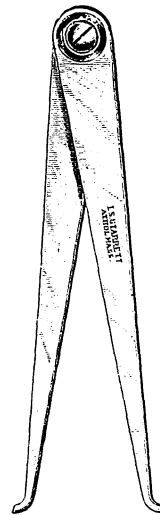


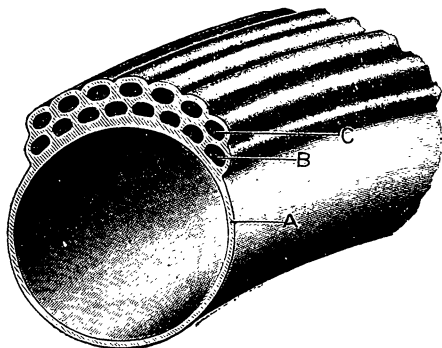
Fig. 2.—Improved Firm Joint Calipers No. 27.

to suit the user. The quality of these calipers is referred to as superior to that of old style riveted joint calipers.

E. C. STEARNS & Co., Syracuse, N. Y., illustrate in "The Yellow Fellow" their Stearns' Special Bicycle being tested over logs of wood laid on a floor, resembling a corduroy road. The circuit of bumps and jounces measured 175, and this was ridden over on consecutive days until 1785 miles had been covered. It is stated that the wheel was fitted with wooden rims of the Stearns pattern, and that the closest scrutiny of all parts of the machine failed to reveal the slightest deterioration.

Farr's Self Sealing Tube.

The Newton Rubber Works, Boston, Mass., are offering Farr's self sealing pneumatic tube, a section of which is here shown. Rows of pneumatic tubes represented by B and C in the cut are attached to and outside of the large air tube A. The tubular cells B and C are sealed at the ends, with the normal atmosphere (15 pounds to the square inch) confined in each cell, forming, it is remarked, an air cushion, and are a succession of elongated balls. It is explained that these tubes, not being distended, always remain in their natural position, as rubber when not distended is naturally self healing, and that a hole pricked in rubber which is not inflated is self closing. It is stated that

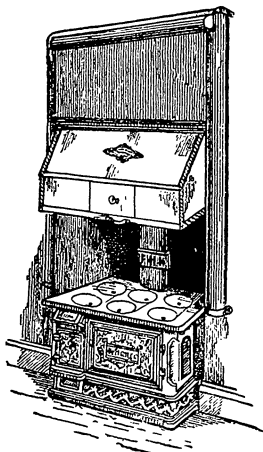


Farr's Self Sealing Tube.

the tubular cells protect the air tube from all possibility of being punctured, and that they prevent cuts often made in air tubes by sharp stones, broken crockery, glass, nails, tacks, &c.; also if a sharp stone or other substance should be encountered, they will yield and ward off the blow; or if they should become punctured, will immediately seal themselves and prevent the escape of air. The additional weight of the tubes is five ounces, but the extra weight, it is claimed, is more than overcome by the less resistance offered.

Heat and Odor Extinguisher.

The illustration herewith shows an attachment for coal and gas ranges that is being manufactured by the Heat & Odor Extinguisher Company, 525 West



Heat and Odor Extinguisher.—Fig. 1.—Open to Use Top of Stove.

Twenty-third street, New York. It is an adjustable hood with a fire proof curtain which works on a roller so that the hood can be suspended at any desired

point. It forms a protection against much radiant heat, and serves as a flue to carry off both heat and the fumes of cooking, making a good kitchen ven-

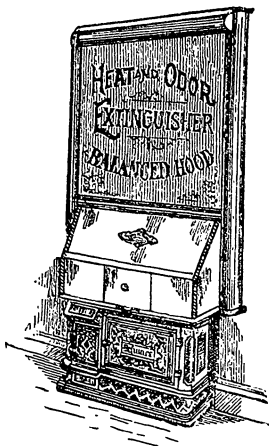
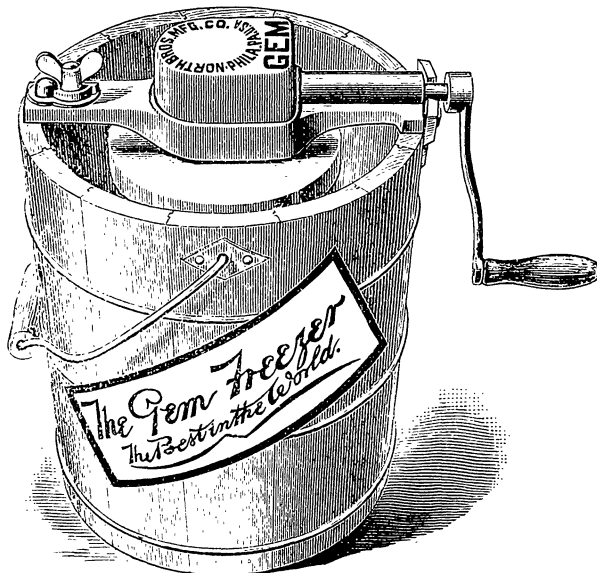


Fig. 2.—Closed to Prevent Heat Escaping.

tilator. It retains the heat when down for the benefit of the cooking and protects the vessels from cool currents. The difference in the temperature in the summer from the use of the extinguisher is said to be several degrees, and enough to establish appreciable comfort. Fig. 1 shows the extinguisher raised so the top of the stove can be used, and Fig. 2 shows it closed.

The Gem Freezer.

North Brothers Mfg. Company, Philadelphia, Pa., for whom John H. Graham & Co., 113 Chambers street, New York, are agents, are offering the



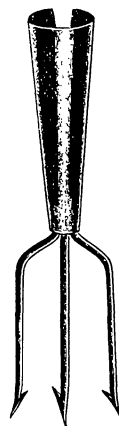
The Gem Freezer.

Gem freezer improved, as illustrated herewith. The cap covering the gearing is now made separate, and is bolted to the cross piece instead of being cast solid. One advantage of this construction is the small cost at which the parts can be replaced if for any reason they should be broken. Another feature is the arrangement of the gearing, which, it is stated, obviates all danger of its binding. All inside parts of the freezer are thoroughly coated with pure block tin, and the outside parts are galvanized. The pails are made of Virginia white cedar, upon which are used

galvanized electric welded wire hoops. The hoops are embedded in grooves made in the pail, securely clamping the staves, making it impossible, the manufacturers state, for the hoops to fall off or to be forcibly removed without injury to the hoops or pail. It is claimed that expansion of the wood cannot break the wire hoops, that they will not stretch, that being round only a small portion of the surface is presented to the pail, and that the hoop conduces to a better and stronger joint than is possible by any other method. The Gem freezer is made in 1, 2, 3, 4, 6, 8, 10 and 14 quart sizes.

Frog Spear.

The frog spear herewith shown is being introduced by the Union Mfg. &



Frog Spear.

Plating Company, Freeport, Ill. The socket is made from cold rolled steel

and the blades from fine spring steel. The parts are referred to as being well brazed together, finished in Japan, and the spears as weighing 1 ounce each.

W. H. BRIGGS & SON, Valdosta, Ga., send a handsome 1894 calendar, illustrated in colors, which calls particular attention to Turpentine Tools and Supplies, among which Hacks are given prominence. The firm are agents for Turpentine Tools manufactured by J. P. Williams & Co., Savannah, also by the Downing Company, Brunswick, Ga.

Chalk Lines—See Lines.
Checks, Door.....50¢
Chisels—
Socket Framing and Firmer
 Mix.....15¢
 New Haven.....15¢
 Ohio Tool Co.....75¢10¢75¢10¢10¢
 P. S. & W.....15¢
 Witherby.....30¢
 Buck Bros.....30¢
 Douglass.....75¢75¢55¢
 Merrill.....60¢10¢60¢10¢
 L. & J. White.....30¢30¢55¢
Tanged and Miscellaneous
 Buck Bros.....30¢
 Butchers.....\$1.75¢\$5.00 to 2
 Cold Chisels, fair quality, # 14 to 16¢
 Spear & Jackson's.....\$6 to 10¢
 Tanged Firmer.....60¢60¢10¢
Chucks—
 Beach Pat.....each, \$8.00.....20¢
 Danbury.....each, \$6.00, 30¢30¢55¢
 Graham Patent.....33¢45¢
 Morse's Adjustable, each, \$7.00, 20¢20¢55¢
 Syracuse, Balz Pat.....25¢
 Skinner's Patent Chucks.....33¢45¢
 Combination Lathe Chucks.....33¢45¢
 Drill Chucks.....40¢
 Independent Lathe Chucks.....40¢
 Universal Lathe Chucks.....40¢
 Union Mfg. Co.....40¢
 Combination.....40¢
 Independent.....40¢
 Universal.....40¢
 Victor.....\$3.50, 25¢
Churns—
 McDermaid Star Barrel Churn, each
 6 gal., \$2.60; 10 gal., \$2.75; 15 gal.,
 \$3.00; 20 gal., \$3.25.
 Twin Union, each, 5 gal. \$3.25; 7 gal.,
 \$3.75; 10 gal., \$4.25.
Clamps—
 Adjustable, Cincinnati.....15¢10¢
 Adjustable, Cincinnati.....15¢10¢
 Adjustable, Cincinnati.....15¢10¢
 Barnes' Machinists' Clamps.....33¢45¢
 Cabinet, Sargent's.....70¢10¢
 Carpenter's, Cincinnati.....25¢10¢
 Carriage Makers', P. S. & W. Co., 40¢10¢
 Carriage Makers', Sargent's.....75¢75¢55¢
 Eberhard Mfg. Co., 40¢50¢40¢10¢
 R. I. Tool Co.'s Wrought Iron.....25¢
 Saw Clamps, see Vises, Saw Filers.
 Stearns' Adjustable Cabinet and Cor-
 ner.....30¢30¢10¢
 Warner's.....40¢10¢40¢10¢55¢
Cleavers, Butchers—
 Beatty's.....40¢40¢55¢
 Bradley's.....25¢30¢
 Foster Bros.....30¢
 New Haven Edge Tool Co.'s.....40¢
 Nichols Bros.....30¢
 P. S. & W.....33¢45¢55¢10¢
 Schulte, Lohr & Co.....40¢40¢55¢
 L. & J. White.....20¢55¢
Clips—
 Baker Axle Clips.....25¢
 Norway, Axle, 1/4 & 5-16.....55¢55¢55¢
 Norway Spring Bar Clips, 5-16.....55¢55¢
 2d grade Norway Axle, 1/4 & 5-16.....55¢55¢
 Steel Felloe Clips.....# 1, 5¢
 Superior Lock Clips.....65¢45¢70¢
 Wrought Iron Felloe Clips.....5¢
Cloth and Netting, Wire
 See Wire, &c.
Cockeyes.....50¢
Cocks Brass—
 Hardware List (Globe, Kerosene, Lever
 Bibbs, Racking, &c.).....60¢2¢60¢10¢
Coffee Mills—See Mills, Coffee.
Collars Dog—
 Brass, Pope & Stevens' list.....40¢
 Chapman Mfg. Company, new list.....40¢
 Embossed, Gilt, Pope & Stevens' list.....30¢15¢
 Leather, Pope & Stevens' list.....40¢10¢60¢
 Medford Family Goods Co.....40¢10¢60¢
Combs Curry—
 American Curry Comb Co.....33¢40¢
 Fitch's.....50¢10¢60¢10¢10¢
 Kohler's Humane.....# doz., \$1.75
 Kohler's Magic Oscillating.....# doz., \$2.00
 Rubber, per doz., \$10.00.....25¢
Compasses, Dividers &c.
 Compasses, Callipers, Dividers, 70¢10¢75¢
 Bemis & Call Co.'s
 Dividers.....65¢
 Callipers, Call's Patent Inside.....55¢
 Callipers, Double.....65¢
 Callipers, Inside or Outside.....65¢
 Callipers, Wing.....65¢
 Compasses.....50¢55¢
 Excelsior.....60¢
 Starrett's
 Combination Dividers.....25¢
 Lock Callipers and Dividers.....25¢
 Spring Callipers and Dividers.....25¢10¢
 Stevens & Co.'s.....25¢10¢
Coolers, Water—
 S. S. & Co.: 2-gal., \$2.00; 3-gal., \$2.50;
 4-gal., \$2.75; 6-gal., \$3.40 each.....33¢45¢
Coopers' Tools—
 See Tools, Coopers.
Cord Sash—
 Braided, Crown Drab and Fancy, #
 1, 55¢.
 Braided, Crown White, # 1, 50¢.
 Cable Laid Italian Sash.....# 1, 19¢20¢
 Common.....# 1, 12¢13¢
 Common Russia Sash.....# 1, 12¢13¢
 Egyptian, India Hemp, Braided.....28¢
 India Cable Laid Sash.....# 1, 11¢12¢
 Massachusetts, White.....25¢
 Ossawaun Mill.....25¢
 Braided, Giant, Drab and Fancy, #
 1, 36¢.
 Braided, Giant, White, # 1, 30¢.
 Patent, good quality.....# 1, 10¢11¢
 Patent Russia Sash.....# 1, 13¢14¢
 Samson
 Braided, Drab Cotton.....# 1, 42¢
 Braided, Italian Hemp.....# 1, 40¢
 Braided, Linen.....# 1, 10¢
 Braided, White Cotton.....# 1, 37¢
 Semper Idem, Braided, White.....20¢
 Silver Lake—
 A quality, Drab, 55¢.....25¢
 A quality, White, 50¢.....25¢
 B quality, Drab, 35¢.....10¢
 B quality, White, 30¢.....10¢
 Sylvan Spring, Extra Braided, Drab, 39¢
 Sylvan Spring, Extra Braided, White, 34¢
 Tate's Solid Braided—
 Economy, Drab.....# 1, 27¢
 Economy, White.....# 1, 22¢
 Hercules, Drab.....# 1, 30¢
 Hercules, White.....# 1, 25¢
 White Cotton Braided, fair.....# 1, 23¢24¢

Wire Picture—
 Braided or Twisted.....80¢50¢80¢15¢
Corkscrews—See Screws, Cork.
Corn Knives and Cutters
 See Knives, Corn.
Crackers, Nut—
 Acme
 Japanned, # gro., \$30.....50¢
 Nickel Plated, # gro., \$30.....10¢
 Blake's Pattern, # doz., \$2.00.....10¢
 Table (H. & B. Mfg. Co.).....40¢
 Turner & Seymour Mfg. Co.....50¢
Cradles—
 Grain.....50¢2¢60¢5¢2¢
Crayons—
 White Crayons, # gross.....7¢8¢
 D. M. Steward Mfg. Co.:
 Metal Workers', # gross, \$2.50.....25¢
 Railroad, # gross, 2.00.....25¢
 Rolling Mill, # gross, 2.50.....25¢
 Soapstone Pencils, # gross, 1.50.....25¢
 See also Chalk.
Creamery Pails—See Pails, Creamery.
Crow Bars—See Bars, Crow.
Curry Combs—
 See Combs, Curry.
Curtain Pins—
 See Pins, Curtain.
Cutters—
Meat—
 American.....30¢
 Nos. 1 2 3 4 B 5
 Each.....\$5 \$7 \$10 \$25 \$50 \$80
 Enterprise.....10 12 25 35
 Nos. 1 2 3 4 B 5
 Each.....\$3 \$2.50 \$4 \$6 \$15
 Dixon's, # doz.....40¢40¢55¢
 Nos. 1 2 3 4 B 5
 Each.....\$14.00 \$17.00 \$19.00 \$30.00
 Draw Cut, each:
 Nos. 1 2 3 4 B 5
 \$50 \$75 \$80 \$225.....20¢25¢
 Hale's, # doz.....11 12 13
 Nos. 1 2 3 4 B 5
 Home No. 1, # doz., \$26.00.....55¢10¢
 Little Giant, # doz.....40¢10¢50¢
 Nos. 1 2 3 4 B 5
 \$35.00 \$48.00 \$44.00 \$72.00 \$88.00
 Miles' Challenge, # doz.....45¢45¢10¢
 Nos. 1 2 3 4 B 5
 Triumph No. 505, # doz., \$21.00, 25¢30¢
 Wadsworth's, # doz.....100 150
 Nos. 1 2 3 4 B 5
 \$15.00 \$18.00
 Beef Shavers (Enterprise).....20¢
 Chadborn's Smoked Beef Cutter, # doz.,
 \$66.00
Slaw and Kraut—
 Tucker & Dorsey Mfg. Co.:
 Kraut Cutters.....40¢
 Slaw Cutters, 1 Knife, # gross, \$21.00
 Slaw Cutters, 2 Knife, # gross, 30.00
Tobacco—
 Acme.....# doz., \$20.00, 40¢
 All Iron.....# doz., \$4.25
 Champion.....20¢10¢30¢
 Cashua Lock Co.'s.....# doz., \$18.00, 50¢55¢
 Sargent's.....# doz., \$24.00, 55¢60¢
 Wilson's.....# doz., \$18.00, 55¢
Washer—
 Appleton's.....# doz., \$16.00, 60¢10¢
 Bonney's.....# doz., 30¢10¢
 Cincinnati.....# doz., 25¢10¢
 Johnson's.....# doz., \$11.00, 33¢45¢
 Penny's.....# doz., \$14.00, \$16.00
 Smith's Pat.....# doz., \$12.00, 20¢10¢10¢
Diggers, Post Hole, &c.—
 Cronk's Post Bars, # doz., \$60.00,
 50¢55¢50¢10¢
 Eureka Diggers.....# doz., \$12.00, \$13.00
 Fletcher Post Hole Augers, # doz., \$36.00,
 20¢10¢10¢
 Gem, Improved, # doz., \$9.00, 20¢10¢
 Gibbs' Columbia.....# doz., \$13.00
 Gibbs' Imperial.....# doz., \$7.50
 Gibbs' National.....# doz., \$12.00
 Gibbs' Post Hole Digger.....# doz., \$15.00
 Kohler's Hercules.....# doz., \$14.00
 Kohler's Invincible.....# doz., \$12.00
 Kohler's Little Giant.....# doz., \$18.00
 Kohler's New Champion.....# doz., \$18.00
 Samson.....# doz., \$34.00.....25¢25¢10¢
 Scheldier.....# doz., \$18.00
 Shimer's Hollow Handle.....# doz., \$24.00,
 50¢
 Vaughan's Post Hole Auger, # doz., \$5.00,
 \$8.50¢\$9.50
Dividers—See Compasses.
Dog Collars—See Collars, Dog.
Door Checks—
 See Checks, Door.
Door Springs—
 See Springs, Door.
Drawers—
 Money, # doz.....\$18¢\$20¢
 Wadell's Improved, No. 1, # doz., \$15.00
 Wadell's Improved No. 2, # doz., \$18.00
 Wadell's Desk and Drawer, each, \$7.50
 Wadell's Desk and Show case, each, \$7.50
Drawing Knives—
 See Knives, Drawing.
Drills and Drill Stocks—
 Blacksmith's.....each \$1.75
 Blacksmith's Self-Feeding, each \$7.50, 20¢
 Automatic Boring Tools.....\$1.75¢\$1.85
 Breast, Bartholomew's.....each \$2.50,
 26¢10¢40¢
 Breast, Millers Falls.....each \$3.00, 25¢
 Breast, P. S. & W.....40¢10¢
 Breast, Wilson's.....30¢55¢
 Chicopee Automatic Drill.....20¢10¢
 Goodell Automatic Drills.....40¢55¢
 Ratchet, Curtis & Curtis.....30¢
 Ratchet, Ingersoll's.....20¢20¢55¢
 Ratchet, Merrill's.....20¢20¢55¢
 Ratchet, Moore's Triple Action.....25¢30¢
 Ratchet, Parker's.....20¢20¢55¢
 Ratchet, Weston's.....20¢25¢
 Ratchet, Whitney's.....20¢10¢
 Whitney's Self-Feeding Drill, Plain, \$11.00,
 Adjustable, \$12.00.....20¢10¢
Twist Drills—
 Cleveland.....50¢10¢10¢
 Diamond, W. & B.....60¢10¢10¢
 Graham's Pat. Groove Shank.....60¢10¢10¢
 Morse.....60¢10¢10¢
 New Process.....60¢10¢10¢
 Standard.....60¢10¢10¢
 Syracuse (Metal List).....50¢10¢

Drill Bits or Bit Stock
Drills—See Augers and Bits.
Drill Chucks—See Chucks.
Dripping Pans—
 See Pans, Dripping.
Drivers, Screw—
 Allard's Spiral, new list.....25¢
 Brace Screw Drivers.....25¢10¢
 Buck Bros.....30¢
 Buck Bros' Screw Driver Bits.....27¢45¢
 Clark's Pat.....30¢33¢45¢
 Cincinnati.....25¢10¢
 Champion.....25¢10¢
 Disston's.....50¢
 Douglass Mfg. Co.....20¢20¢10¢
 Ellrich's Socket and Ratchet.....25¢25¢10¢
 Fray's Hol. H'dle Sets.....No. 3, \$12.00, 45¢
 Gay & Parsons.....35¢
 Goodell's Automatic.....50¢
 Knapp & Cowles.....25¢10¢
 No. 2.....60¢20¢70¢
 No. 3.....60¢20¢70¢
 Nos. 4 and 00, Acme and Ideal.....50¢55¢
 Kolb's Common Sense.....# doz., \$5.00,
 25¢10¢
 Mayhew's Black Handle.....50¢
 Mayhew's Monarch.....45¢10¢
 P. S. & W.....70¢
 Sargent & Co.'s
 No. 1, Forged Blade.....60¢10¢10¢
 Nos. 20, 40 and 60, 60¢10¢10¢
 Screw Driver Bits, Parr's, # gross, \$8.25
 Screw Driver Bits.....# doz., 50¢75¢
 Stanley R. & L. Co.'s
 No. 64, Varnished Handles.....65¢10¢
 No. 86.....70¢10¢
 Steam's Screw Driver.....25¢10¢55¢
 Syracuse.....30¢30¢55¢
 C. T. Williamson Wire Novelty Co.....50¢
Egg Beaters—See Beaters, Egg.
Egg Poachers—
 See Poachers, Egg.
Electric Bell Sets—
 See Bells, Electric.
Emery—No. 4 to No. 54 to Flour, CF
 46 gr. 150 gr. F.F.F.
 Kegs, # doz.....45¢5¢
 14 kegs, # 5.....5¢3¢4¢
 14 kegs, # 5.....5¢3¢4¢
 10-# cans, 10.....6¢5¢6¢
 in case.....6¢5¢6¢
 10-# cans, less
 than 10.....10¢10¢8¢
Enameled and Tinned Ware—See Ware, Hollow.
Escutcheon Pins—
 See Pins, Escutcheon.
Escutcheons—
 Brass Thread.....60¢60¢10¢
 Door Lock.....Same dis. as Door Locks.
 Wood.....25¢
Expanded Metal—
 List No. 5.
 Door Mats, Galvanized.....25¢
 Fencing, Painted Sheets.....20¢
 Lathing.....10¢
 Netting, Painted Sheets.....20¢
 Tree Guards, Paneled.....15¢
 Window Guards, Paneled.....15¢
Extractors, Lemon Juice—
 See Squeezers, Lemon.
Fasteners, Blind—
 Austin & Eddy No. 2008.....# gr., \$9.00
 Mackrell's, # doz., \$1.00.....20¢20¢10¢
 Security Gravity.....# gr., \$9.00
 Van Sand's Old Pat., \$15 # gr.....55¢10¢
 Van Sand's Screw Pat., \$15 # gr.....60¢10¢
 Zimmerman's.....50¢10¢
Faucets—
 B. & L. B. Co.
 West's Lock, Open and Shut Key.....50¢
 Burnside's Red Cedar.....50¢
 Burnside's Red Cedar, bbl. lots.....50¢10¢
 Cork Lined.....70¢5¢70¢10¢
 Fenn's Cork Stops.....33¢
 Frary's Pat. Petroleum.....60¢
 Metallic Key, Leather Lined.....60¢10¢
 60¢10¢10¢
 John Sommers'
 Pinned Post Block Tin Key.....40¢
 IXL, 1st quality, Cork Lined.....50¢
 Perfection, Fla. Red Cedar (in boxes) 40¢
 Boss Metallic Key.....50¢
 Reliable Cork Lined.....50¢
 O. K. Western Pattern Cork Lined.....50¢
 Pe Brand, B. & C. Cedar (in bbls.).....60¢10¢
 Western Pattern Metal Key.....40¢
 No Brand Metal Key.....60¢
 Self Measuring
 Enterprise, # doz., \$36.00.....20¢
 Lane's # doz., \$36.00.....25¢10¢
 Star.....60¢
 Star, Metal Plug, new list.....40¢
 Lockport, Metal Plug, reduced list.....60¢
Felloe Plates—
 See Plates, Felloe.
Fibre Ware—See Ware, Fibre.
Fifth Wheels—
 Derby and Cincinnati.....45¢55¢
 Butler.....50¢55¢
Files—
Domestic—
 American.....60¢10¢60¢10¢55¢
 Arcade.....60¢10¢55¢60¢10¢10¢
 Eagle.....60¢10¢10¢70¢
 G. & H. Barnett (Black Diamond)
 Nicholson Files, Rasps, &c. 60¢10¢55¢
 60¢10¢10¢
 Nicholson (X.F.) Files.....25¢
 Nicholson's Royal Files (Seconds).....75¢
 (extra prices on certain sizes.)
 Other makers, best brand's.....60¢10¢55¢70¢
 Fair brands.....70¢10¢70¢10¢10¢
 Second quality.....80¢80¢55¢
 Arcade Horse Rasps.....50¢10¢55¢
 Chelsea Horse Rasps, Hand Cut.....50¢10¢
 Heller's Horse Rasps.....60¢10¢60¢
 McCaffrey's Horse Rasps.....50¢10¢
 Trojan Horse Rasps.....60¢10¢55¢
Imported—
 Butcher.....Butcher's list, 20¢
 Stubbs' list 25¢30¢

Fixtures Grindstone—
 Moore's.....55¢
 P. S. & W. Co.....50¢10¢
 Reading Hardware Co.....30¢10¢
 Sargent's Patent.....70¢10¢
Fluting Machines—
 See Machines, Fluting.
Fluting Scissors—
 See Scissors, Fluting.
Fodder Squeezers—
 See Squeezers, Fodder.
Forks—
 Hay, Manure, &c. Asso. List, 70¢70¢55¢2¢
 Hay, Manure, &c., Phila. List, 80¢80¢10¢2¢
 Plated, see Spoons.
Frames—
Saw—
 Red, Polished and Varnished.....# doz.,
 \$1.50, 25¢
 White Vermont.....# gro., \$9.00, \$10.00
Screen, Window and Door—
 Bonanza Window Screens.....60¢80¢10¢
 Cortland.....40¢40¢55¢
 Empire Fancy Screen Doors.....# doz., \$12
 Phillips' Window Screen Frames.....50¢50¢55¢
 Porter's Pat. Window and Door Frame,
 35¢10¢
 Stearns' Frames and Corners.....25¢25¢10¢
 Warner's Screen Corner Irons.....35¢10¢
Freezers, Ice Cream—
 American.....60¢
 Arctic.....70¢70¢55¢
 Blizzard.....70¢
 S. and P.....60¢10¢10¢10¢
 Buffalo Cham.....65¢65¢55¢
 Confectioners' Machine.....50¢
 Crown.....60¢
 Double Action Crown.....60¢
 Gem.....65¢
 Grafton.....65¢65¢55¢
 Granite State.....65¢65¢55¢
 Keystone, F. D. & Co., each, \$1.50.....20¢
 Model.....60¢60¢55¢
 Peerless.....60¢10¢
 Shepard's Lightning.....65¢65¢55¢
 Standard.....60¢60¢55¢
 Standard Double Action.....60¢60¢55¢
 Star.....60¢
 White Mountain.....60¢60¢55¢
 Zero.....70¢
Fruit and Jelly Presses—
 See Presses, Fruit and Jelly.
Fry Pickers—
 See Pickers, Fry.
Fry Pans—See Pans, Fry.
Funnels—
 Gersdorff's Perfection, Standard and
 Globe; Tin, 1 gro., 10¢; 2 to 5 gro.,
 20¢; 5 to 10 gro.....30¢
 Copper, 1 to 6 doz., 15¢; 6 to 12
 doz., 20¢; over 12 doz.....25¢
Furnaces, Soldering—
 Burgess No. 3 Gem, Copper reservoir, \$3.50
 Burgess No. 3 Gem, tin reservoir.....\$7.00
 complete.....\$8.00
 Lambert No. 1 Fire-Pot.....\$8.00
Fuse—Dis. 10¢2¢3¢ each, # 1, 1000 ft.
 Common Cotton Fuse, for dry grnd., \$3.00
 Common Hemp Fuse, for dry ground, 2.50
 Double Taped Fuse, for very wet gr., 5.60
 Single Taped Fuse, for wet ground, 4.75
 Triple Taped Fuse, for very wet gr. 6.40
 Large Gutta Percha Fuse, for water, 15.00
 Small Gutta Percha Fuse, for water, 10.00
Gates Molasses—
 Boss, # doz.....\$10.
 No. 1, \$7; No. 2, \$8; No. 3, \$9; No. 4,
 \$10.....60¢10¢10¢
 Lincoln's Pattern.....70¢70¢10¢
 Stebbin's Genuine.....60¢10¢10¢
 Stebbin's Pattern.....60¢10¢10¢
 Stebbin's Tinned Ends.....10¢10¢
 Weed's.....20¢10¢
Gauges—
 Barrett's Comb. Roller Gauge.....# doz \$8.00, \$8.50
 Hoague & Peck's Champion Gauge—
 With Scale.....# doz., \$5.00
 Without Scale.....# doz., \$4.00
 Marking, Mortise, &c.....60¢10¢
 Stanley J. & L. Co.'s Butt and Rabbit
 Gauge.....25¢10¢
 Starrett's Surface, Center and Scratch,
 25¢10¢
 Wire, Brown & Sharpe's.....10¢20¢
 Wire, Morse's.....25¢
 Wire, P. S. & W. Co.....10¢10¢
 Wire, Wheeler, Madden & Co.....10¢
Gimlets—
 Nail and Spike.....50¢10¢55¢
 Diamond Gimlets.....# gr \$5.00
 Eureka Gimlets.....60¢10¢
 Double Cut, Douglass.....40¢10¢
 Double Cut, Ives.....60¢60¢55¢
 Double Cut, Shepardson's.....45¢45¢55¢
Glue—
 Dodd's Liquid Glue.....25¢25¢55¢
 Improved Process.....25¢25¢55¢
 e Page's Liquid.....25¢25¢55¢
 Upton's Liquid.....35¢
Glue Pots—See Pots, Glue.
Grease, Axle—
 Axleline, tin boxes.....# gross \$12.00
 Dixon's Everlasting, 10-# pails, ea. 85¢
 Dixon's Everlasting, in bxs., 40¢ doz 1
 English Coach, 5-# tin pails, # doz, \$3.50
 English Coach, wooden boxes.....# gross \$8.50
 Fraser's.....Keg # 4¢, Pail # 5¢
 Fraser's, in boxes.....# gr \$9.50
 Lower grades, special brands.....# gr \$5.00, \$5.25
 Tiger, 5-# tin pails.....# gr \$2.85
 Tiger, wooden boxes.....# gross \$7.00
Grindstones—
 Family, regular list.....60¢
 Family, Cleveland Stone Co.....20¢
Grindstone Fixtures—
 See Fixtures, Grindstone.
Gun Powder—See Powder.
Hack Saws—See Saws.
Hafts, Awl—
 Sewing, Brass Fer, # gr.....\$1.75
 Pat. Sewing, Long.....# doz \$1.20
 Pat. Sewing, Short.....# doz, 45¢50¢
 Pat. Peg Leather Ton, # doz.....45¢50¢
 Pat. Peg, Plain Top # doz.....40¢45¢

Halters—	
Covert's Adj. Rope Halters.....	40&24
Covert's Adj. Web Halters.....	35&25&24
Covert's Hemp Horse and Cattle Ties.....	50&10&24
Covert's Jute Cattle Ties.....	70&10&24
Covert's Jute Horse Ties.....	70&24
Covert's Rope, 7-18 in., Jute.....	70&24
Covert's Rope, 7-18 in., Hemp.....	50&24
Covert's Rope, 7-18 in., Hemp.....	60&10&10&24
Covert's Saddlery Works Halters.....	33&24
Covert's Saddlery Works Handy Web Halters.....	33&24
Covert's Saddlery Works Horse and Cattle Ties.....	33&24

Hammers—	
Handled Hammers—	
Atha Tool Co.....	50&10&14
Buffalo Hammer Co.....	50&10&14
Humason & Beckley.....	50&10&14
Verree.....	40&10&14
Cheney's Claw.....	40&10&14
Cheney's Claw & Riveting.....	50&24
C. Hammond & Son.....	40&10&14
Magnetic Tack, Nos. 1, 2, 3, 1.25, 1.50 & 1.75.....	30&10&14
Maydole's, list Dec. 1, '85.....	25&10&14
Peck, Stow & Wilcox.....	35&40
Payette R. Plumb.....	40&10&14
Artisan's Choice, A. E. Nall.....	40&10&14
Horseshoe Turning Hammers.....	50
Regular Y. & P. A. E. Nall.....	50
Other Hammers.....	50&10&14
Nelson Tool Works.....	40&10&14
Sargent's.....	40&10&14
Warner & Nobles, new list.....	25&10

Heavy Hammers and Sledges—	
3 lb. and under.....	75&10&75&14
3 to 5 lb.....	15
Over 5 lb.....	15
Wilkinson's Smiths.....	10&10&11&14

Handcuffs and Leg Irons—

—See Police Goods.

Handles—

Cross-Cut Saw Handles—	
Atkins, new list.....	40
Champion.....	15
Ely's Perfection.....	40
Sensible.....	40

Iron, Wrought or Cast—

Barn Door, per doz.....	10&10&14
Bronze Iron Drop Latches.....	40
Chest and Lifting.....	70&70&10&14
Door or Thumb.....	40
Nos.....	0 1 2 3 4
Per doz.....	\$0.90 1.00 1.08 1.85 1.50

Jap'd Store Door Handles—Nuts, 1.02; Plate, 1.10; no plate, \$0.88.....	net
Roggin's Latches.....	40

Wood—

Auger, assorted.....	gr 5.00
Auger, large.....	gr 7.00
File, assorted.....	gr 2.75
Bradawl.....	gr 2.00
Apple Firmer Chisel, ass'd.....	gr 4.00
Apple Firmer Chisel, large.....	gr 6.00
Hickory Firmer Chisel, ass'd.....	gr 4.00
Hickory Firmer Chisel, large.....	gr 5.00
Socket Firmer Chisel, ass'd.....	gr 3.00
Socket Framing Chisel, ass'd.....	gr 5.00
Hammer, Hatchet, Axe, &c.....	40&24
Hoe, Rake, Shovel, &c.....	40&24
Pat. Auger, Douglass.....	set \$1.25
Pat. Auger, Ives.....	30&10&14
Pat. Auger, Swan's.....	set \$1.00
Saw and Plane.....	40&10&14
J. B. Smith & Co.'s Pat. File.....	50

Hangers—

Barn Door, New England.....	70&70&54
Barn Door, old patterns.....	70&70&54
Barry.....	50
Best Anti-Friction.....	60&10&60&10&14
Boss.....	60&10&60&10&14
Carrier Steel Anti-Friction.....	50&10&14
Champion.....	50&10&14
Chicago Anti-Friction.....	30&10&14
Climax Anti-Friction.....	55
Cincinnati Nos. 1, 2, 2.25; 3, 2.50; 4, 2.50.....	60&80&10&14
Crescent.....	60&80&10&14
Pat. Steel Covered.....	50&10&14
Duplex (Wood Track).....	60&10&14
Economy.....	50&10&14
Hamilton Wrought Steel Track.....	55
Interstate.....	50&10&60
Kidder's.....	50&60&10&14
Lane's New Standard.....	50&60&14
Lane's Parlor.....	40&10&14
Lane's Standard.....	50&60&10&14
Lundy, Steel Parlor.....	40
Magic.....	45&10&14
Matchless.....	50&10&14
Moody.....	45
Moore's Baggage Car Door.....	33&24
Moore's Elevator.....	33&24
Moore's Railroad.....	55
Nickel, Steel, Nos. 0, 25; 1, \$20; 2, \$15.....	40&10&60

Orleans Steel.....

Paragon Nos. 6, 54, 7 and 8..... 20&10&14

Pendulum, Payson's..... 40&40&10&14

Perfection..... 50&10&60&10&14

Richards..... 30&30&10&14

Samson Steel Anti-Friction..... 55

Star..... 40&10&40&10&14

Stearns' Anti-Friction..... 20&10&10&14

Stearns' Challenge..... 25&10&10&14

Sterling..... 50&10&60

Terry's Ideal..... 50&10&60&10&14

Terry's Modern..... 50&10&60&10&14

Terry's Shield..... 50&10&60

Terry's Solid..... 50&10&60

Terry's Wrought Single Strap..... 50&10&60

Victor No. 1, \$15.00; No. 2, \$16.50; No. 3, \$18.00..... 50&24

Warner's Pat..... 20&10&10&14

Wild West..... 45&10&14

Zenth for Wood Track..... 55

Harness Snaps—See Snaps.

Hatchets—

American Axe and Tool Co.....

Blood's..... 40 & 10

Hunt's..... 40 & 10

Hurd's..... 40 & 10

Mann's..... 40 & 10

Peck's..... 40 & 10

Underhill's..... 40 & 10

C. Hammond & Son..... 40 & 10

Payette R. Plumb..... 10

Collins..... 10

Buffalo Hammer Co..... 50 & 20

Kelly & W. Co..... 50 & 20

Sargent's & Co..... 50 & 20

Schulte, Lohoff & Co..... 50 & 20

Ten Eyck Edge Tool Co..... 50 & 20

Hay and Straw Knives

See Knives.

Hinges—

Blind Hinges—

Clark's Nos. 1, 3, 5, 1888, Old Pattern..... 75&10&54

Nos. 1 and 3, Tip Pattern..... 75&10&54

No 50, Buffalo Noiseless, 40, 60 and 65..... 75

Buffalo Reversible, Nos. 3, 2, 1 1/2, 1 and 0..... 70&54

No. 1 Cottage, for wood only..... 80&10&14

No. 1, Diamond, for wood only..... 80&54

Dixie L. & P., Nos. 3, 2 1/2, 2, 1 1/2, 1, 0, 00, 4 and 5..... 75&54

No. 25, Empire Reversible..... 75&10&14

Lull & Porter, Nos. 3, 2 1/2, 2, 1 1/2, 1, 0, 0, 4 and 5..... 75&10&14

Mortise Gravity, Nos. 2, 4, 4 1/2, 6, 8, 9 and 10..... 50

Huffer..... 60&60&10&14

Parker..... 75&10&14

North's Automatic Blind Fixtures, No. 1 for Wood, \$9.00; No. 3, for Brick, \$11.50..... 10

Reading's Gravity..... 75&10&75&10&54

Sargent's Nos. 1, 3, 5, 11, 12, 13..... 75&10&75&10&54

Automatic..... 40

Clark's, Nos. 1, 2, 3..... 60&10&60&10&54

N. E..... 40

N. E. Reversible..... 40

N. Y. State..... 40

Western..... 40

Gate Hinges—

Automatic..... 40

Clark's, Nos. 1, 2, 3..... 60&10&60&10&54

N. E..... 40

N. E. Reversible..... 40

N. Y. State..... 40

Western..... 40

Spring Hinges—

Acme..... 30

American, Gem and Star..... 20

Bardsley's Patent Checking..... 15

Barker's Double Acting..... 25

Bommer's Japanned..... 35

Bommer's All other Kinds..... 30

Blackman's..... 15

Champion..... 40

Chicago..... 30

Devore, No. 1..... 40

Empire and Crown..... 20

Freeport..... 40

Geer's Spring and Blank Butts..... 40

Oxford and Monarch..... 20

Ideal No. 3..... 40

J. G. C. Covered, per gro..... 30

New Idea Nos. 1 and 10, per gross..... 13.00

New Idea Dbl. Acting..... 45

No. 10 Matchless..... 60

No. 25 Unbreakable..... 60

Reliable..... 20

Rex..... 40

Royal..... 60

Samson..... 60&60&7&54

Stearns' Noiseless Floor Hinge, per set, \$5.00..... 20&10&50

Union Mfg. Co..... 25

Union Spring Hinge Co.'s list, March, 1888..... 20

U. S..... 25&10

Wiles, No. 1, per gro., \$10; No. 2, \$13..... 13

Wrought Iron Hinges—

List February 14, 1891.....

Corrugated Strap and T..... 50&10&25&14

Strap and T..... 50&10&50&10&14

Plate Hinges (8, 10 & 12 in., per doz..... 5

"Providence" over 12 in., per doz..... 4

Rolled Blind Hinges, Nos. 32 and 34..... 50&10&14

Rolled Blind Hinges, Nos. 232 and 234..... 50&10&14

Rolled Plate..... 50&10&14

Rolled Raised..... 70&10&14

Screw Hook and Eye..... 4 in., 5 in., 6 in., 8 in., 10 in., 12 in., 14 in., 16 in., 18 in., 20 in., 22 in., 24 in., 26 in., 28 in., 30 in., 32 in., 34 in., 36 in., 38 in., 40 in., 42 in., 44 in., 46 in., 48 in., 50 in., 52 in., 54 in., 56 in., 58 in., 60 in., 62 in., 64 in., 66 in., 68 in., 70 in., 72 in., 74 in., 76 in., 78 in., 80 in., 82 in., 84 in., 86 in., 88 in., 90 in., 92 in., 94 in., 96 in., 98 in., 100 in., 102 in., 104 in., 106 in., 108 in., 110 in., 112 in., 114 in., 116 in., 118 in., 120 in., 122 in., 124 in., 126 in., 128 in., 130 in., 132 in., 134 in., 136 in., 138 in., 140 in., 142 in., 144 in., 146 in., 148 in., 150 in., 152 in., 154 in., 156 in., 158 in., 160 in., 162 in., 164 in., 166 in., 168 in., 170 in., 172 in., 174 in., 176 in., 178 in., 180 in., 182 in., 184 in., 186 in., 188 in., 190 in., 192 in., 194 in., 196 in., 198 in., 200 in., 202 in., 204 in., 206 in., 208 in., 210 in., 212 in., 214 in., 216 in., 218 in., 220 in., 222 in., 224 in., 226 in., 228 in., 230 in., 232 in., 234 in., 236 in., 238 in., 240 in., 242 in., 244 in., 246 in., 248 in., 250 in., 252 in., 254 in., 256 in., 258 in., 260 in., 262 in., 264 in., 266 in., 268 in., 270 in., 272 in., 274 in., 276 in., 278 in., 280 in., 282 in., 284 in., 286 in., 288 in., 290 in., 292 in., 294 in., 296 in., 298 in., 300 in., 302 in., 304 in., 306 in., 308 in., 310 in., 312 in., 314 in., 316 in., 318 in., 320 in., 322 in., 324 in., 326 in., 328 in., 330 in., 332 in., 334 in., 336 in., 338 in., 340 in., 342 in., 344 in., 346 in., 348 in., 350 in., 352 in., 354 in., 356 in., 358 in., 360 in., 362 in., 364 in., 366 in., 368 in., 370 in., 372 in., 374 in., 376 in., 378 in., 380 in., 382 in., 384 in., 386 in., 388 in., 390 in., 392 in., 394 in., 396 in., 398 in., 400 in., 402 in., 404 in., 406 in., 408 in., 410 in., 412 in., 414 in., 416 in., 418 in., 420 in., 422 in., 424 in., 426 in., 428 in., 430 in., 432 in., 434 in., 436 in., 438 in., 440 in., 442 in., 444 in., 446 in., 448 in., 450 in., 452 in., 454 in., 456 in., 458 in., 460 in., 462 in., 464 in., 466 in., 468 in., 470 in., 472 in., 474 in., 476 in., 478 in., 480 in., 482 in., 484 in., 486 in., 488 in., 490 in., 492 in., 494 in., 496 in., 498 in., 500 in., 502 in., 504 in., 506 in., 508 in., 510 in., 512 in., 514 in., 516 in., 518 in., 520 in., 522 in., 524 in., 526 in., 528 in., 530 in., 532 in., 534 in., 536 in., 538 in., 540 in., 542 in., 544 in., 546 in., 548 in., 550 in., 552 in., 554 in., 556 in., 558 in., 560 in., 562 in., 564 in., 566 in., 568 in., 570 in., 572 in., 574 in., 576 in., 578 in., 580 in., 582 in., 584 in., 586 in., 588 in., 590 in., 592 in., 594 in., 596 in., 598 in., 600 in., 602 in., 604 in., 606 in., 608 in., 610 in., 612 in., 614 in., 616 in., 618 in., 620 in., 622 in., 624 in., 626 in., 628 in., 630 in., 632 in., 634 in., 636 in., 638 in., 640 in., 642 in., 644 in., 646 in., 648 in., 650 in., 652 in., 654 in., 656 in., 658 in., 660 in., 662 in., 664 in., 666 in., 668 in., 670 in., 672 in., 674 in., 676 in., 678 in., 680 in., 682 in., 684 in., 686 in., 688 in., 690 in., 692 in., 694 in., 696 in., 698 in., 700 in., 702 in., 704 in., 706 in., 708 in., 710 in., 712 in., 714 in., 716 in., 718 in., 720 in., 722 in., 724 in., 726 in., 728 in., 730 in., 732 in., 734 in., 736 in., 738 in., 740 in., 742 in., 744 in., 746 in., 748 in., 750 in., 752 in., 754 in., 756 in., 758 in., 760 in., 762 in., 764 in., 766 in., 768 in., 770 in., 772 in., 774 in., 776 in., 778 in., 780 in., 782 in., 784 in., 786 in., 788 in., 790 in., 792 in., 794 in., 796 in., 798 in., 800 in., 802 in., 804 in., 806 in., 808 in., 810 in., 812 in., 814 in., 816 in., 818 in., 820 in., 822 in., 824 in., 826 in., 828 in., 830 in., 832 in., 834 in., 836 in., 838 in., 840 in., 842 in., 844 in., 846 in., 848 in., 850 in., 852 in., 854 in., 856 in., 858 in., 860 in., 862 in., 864 in., 866 in., 868 in., 870 in., 872 in., 874 in., 876 in., 878 in., 880 in., 882 in., 884 in., 886 in., 888 in., 890 in., 892 in., 894 in., 896 in., 898 in., 900 in., 902 in., 904 in., 906 in., 908 in., 910 in., 912 in., 914 in., 916 in., 918 in., 920 in., 922 in., 924 in., 926 in., 928 in., 930 in., 932 in., 934 in., 936 in., 938 in., 940 in., 942 in., 944 in., 946 in., 948 in., 950 in., 952 in., 954 in., 956 in., 958 in., 960 in., 962 in., 964 in., 966 in., 968 in., 970 in., 972 in., 974 in., 976 in., 978 in., 980 in., 982 in., 984 in., 986 in., 988 in., 990 in., 992 in., 994 in., 996 in., 998 in., 1000 in., 1002 in., 1004 in., 1006 in., 1008 in., 1010 in., 1012 in., 1014 in., 1016 in., 1018 in., 1020 in., 1022 in., 1024 in., 1026 in., 1028 in., 10

**For revised prices
see Trade Report.**

Snaps, Harness, &c.—

Anchor (T. & S. Mfg. Co.)	50¢
Fitch's (Bristol)	50¢
Hotchkiss	10¢
Andrews	10¢
Bargent's Patent Guarded	70¢
German, new list	40¢
Covert	50¢
Covert, New R. E.	50¢
Covert, New R. E.	50¢
Covert's Saddle Works' Triumph	35¢
John Protz Snaps	76¢
Kelley & Woolworth's Steel Harness	50¢

Snaths—

Scythe	50¢
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Soldering Irons—

See Irons, Soldering.

Spittoons, Cuspidors, &c.

Standard Fibreware	
Cuspidors, 8 1/2 inch, No. 5, 8, & No. 6, 8, 10	
Spittoons, Daisy, 8-inch, No. 1, 4, 10 and 11 inch, 8¢	

Spoke Shaves—

See Shaves, Spoke.

Spoke Trimmers—

See Trimmers, Spoke.

Spoons and Forks—

Basting, Cen. Stamp, Co.'s list	70¢
Solid Table and Tea, Cen. Stamp, Co.'s list	70¢
Buffalo, S. & Co.	38¢

Silver Plated—

4 months or 5¢ cash 80 days:	
Meriden Brit. Co., Rogers	40¢
Rogers & Hamilton	40¢
C. Rogers & Bros.	40¢
Rogers & Bros.	40¢
Reed & Barton	40¢
Wm. Rogers Mfg. Co.	40¢
Simpson, Hall, Miller & Co.	40¢
Holmes & Edwards Silver Co.	40¢
L. Boardman & Son	50¢

Miscellaneous—

Holmes & Edwards Silver Co.	
No. 67 Mexican Silver	50¢
No. 30 Silver Metal	50¢
No. 24 German Silver	50¢
No. 60 Nickel Silver	50¢
No. 49 Nickel Silver	50¢
Wm. Rogers Mfg. Co.	
Rogers' Silver Metal	50¢
18¢ Rogers' German Silver	60¢
22¢ Rogers' Nickel Silver	60¢
Rogers & Hamilton:	
Steel Good	40¢
Cimeter, Flatware	40¢
Cimeter, Steel Goods	40¢
Crown Hamilton, Flatware and Cutlery	30¢
German Silver	50¢
Nickel Silver	50¢
Britannia	60¢
Boardman's Nickel Silver, list July 1, 1891	60¢
Boardman's Britannia Spoons, case lots	60¢

Spring—

Torrey's Rod, 39 in.	50¢
Warner's No. 1, 1/2 doz \$1.20; No. 2, 3/4 doz \$1.50	
Gem (Coll), list April 19, 1886	20¢
Star (Coll), list April 19, 1886	20¢
Victor (Coll)	60¢
Champion (Coll)	60¢
Cowell's, No. 1, 1/2 doz \$1.80	
Rubber, complete, 1/2 doz \$4.50	
Hercules	50¢
Phoenix	38¢

Carriage, Wagon, &c.—

Elliptic, Concord, Platform and Half Scroll	60¢
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Chairs, Bolster Springs—

Steel and Iron	80¢
Nickel Plated	80¢
Try Square and T Bevels	60¢
Diston's Try Square and T Bevels	60¢
Winterbottom's Try and Miter	80¢
Starrett's Micrometer Caliper Squares	25¢
Avery's Flush Bevel Squares	40¢
Avery's Bevel Protractor	60¢

Squeezers—

Blair's	50¢
Blair's "Olimax"	50¢

Fodder—

Porcelain Lined, No. 1	50¢
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Lemon—

Wood, No. 2	50¢
Wood, Common	50¢
Dunlap's Improved	50¢
Sammis, No. 1, 50¢; No. 2, 30¢	
Jennings' Star	50¢
The Boss	50¢
Dean's, No. 1, 50¢; No. 2, 30¢	
Little Giant	50¢
King	50¢
Hotchkiss Straight Flash	50¢
Silver & Co. Glass	50¢

Standard Fiber Ware—

Barbed Blind, 1/2 in. and larger	50¢
Barbed Blind, 1/2 in.	50¢
Fence Staples, Galvanized	50¢
Fence Staples, Plain	50¢
Grand Crossing Tack Co.'s list	75¢

Staples—

Nichols Bros.	40¢
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Steels Butchers—

Blacksmith's	50¢
Waterford Goods	50¢
Butterfield's Goods	50¢
Lightning Screw Plates	50¢
Reece's New Screw Plates	50¢
Reversible Ratchet	50¢
Gardner	50¢
Green River	50¢

Stocks and Dies—

Blacksmith's	50¢
Waterford Goods	50¢
Butterfield's Goods	50¢
Lightning Screw Plates	50¢
Reece's New Screw Plates	50¢
Reversible Ratchet	50¢
Gardner	50¢
Green River	50¢

Steps Bench

Morrill's, 1/2 doz, No. 1, \$10.00; No. 2, \$11.00	
Hotchkiss	50¢
Weston's, No. 1, 10¢; No. 2, 20¢; No. 3, 30¢	

McGill's, 1/2 doz \$3.00

Chinatti	25¢
Terrill's Nos. 1 and 2, 1/2 doz, \$3; No. 3, \$3.60	
Millers Falls	25¢
Stearns	20¢

Stone, Grind—See Grindstones.**Scythe Stones—**

Pike Mfg. Co., list April, 1892	33¢
Cleveland Stone Co., list Nov. 1892	33¢

Oil Stones, &c.—

Pike Mfg. Co.	
Hindustan No. 1, 1/2 doz	50¢
Sand Stone	40¢
Turkey Oil Stone, 1/2 doz	10¢

Turkey Slips.

Lily White Washita	60¢
Rosy Red Washita	60¢
Washita Stone, Extra	60¢
Washita Stone, No. 1	40¢
Washita Stone, No. 2	30¢
Lily White Slips	60¢
Rosy Red Slips	60¢
Washita Slips, Extra	60¢
Washita Slips, No. 1	70¢
Arkansas Stone, No. 1, 3 to 5 1/2 in.	30¢
Arkansas Stone, No. 1 1/2 to 3 in.	35¢

Lake Superior**Stove Polish—****Stretchers Carpet—**

Cast Steel, Polished	50¢
Cast Iron, Steel Points	50¢
Socket	50¢
Bullard's	25¢

Strops, Razor—

Genuine Emerson	60¢
Imitation	20¢
Torrey's	20¢
Badger's	20¢
Lamont Combination	20¢
Jordan's Pat. Padded, list Nov. 1, '89	50¢
Electric Cutlery Co.	Net prices
Campbell Cutlery Co.	Net prices

Stuffer, Sausage—

Miles' Challenge, 1/2 doz \$20	50¢
Perry, 1/2 doz, No. 1, \$15.00; No. 2, \$21.00	
Draw Cut No. 4, each \$30.00	20¢
Enterprise Mfg. Co., list Jan 17, '93	20¢
Silvers	40¢

Sweepers, Carpet and Lawn—

Bissell No. 5	50¢
Bissell No. 8	50¢
Bissell, Grand	50¢
Standard	50¢
Domestic	50¢
Domestic, No. 2	50¢
Grand Rapids	50¢
Crown Jewel, No. 1, \$18.00; No. 2, \$19.00	
Magie	50¢

Nickel and Parlor Queen

Japanned	50¢
Excelsior	50¢
Garland	50¢
Parlor Queen	50¢
Housewife's Delight	50¢
Friend	50¢
Ladies' Friend No. 2	50¢
Advance	50¢
Our Leader	50¢
Triumph	50¢
Supreme	50¢
Easy, Jap'd, 1/2 doz \$22.00; Nickel, \$24.00	
Edge	50¢
Acme	50¢
Imperial	50¢
Grand Republic	50¢
Jap'd, 1/2 doz \$30.00; Nickel, \$33.00	

Banner

The Star	50¢
Reliable	50¢
Rapid, Jap'd, 1/2 doz \$22.00; Nickel, \$24.00	
Our Own	50¢
Model	50¢
Goshen Sweeper Company, Grand Rapids, Mich., make the following re-	

Swings—

Davies Lawn	25¢
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Tacks, Brads &c.—

List October 19, 1889. Old established straight weights. Short Weight goods are sold at lower prices.	
Carpet Tacks—	
American, Blued	60¢
American, Tin'd and Cop'd	70¢
Steel, Bright and Blued	60¢
Steel, Tinned and Coppered	70¢
Swedes, Iron, Blued	72¢
Swedes, Iron, Tinned	75¢
American Iron Tacks, Domestic	60¢
Swedes Iron Tacks—	
S. S., Blued	60¢
S. S., Tinned	70¢
Lang, Blued	65¢
Lang, Tinned	60¢
Gimp and Lace Tacks—	
S. S., Blued	62¢
S. S., Tinned	65¢
Lang, Blued	65¢
Lang, Tinned	60¢
Basket and Trimmers' Tacks—	
Lang	52¢
S. S.	55¢
Hungarian Nails	60¢
Common and Patent Brads	55¢
Leathered Tacks	10¢
Brush Tacks, S. S.	60¢
Looking Glass Tacks, S. S.	55¢
Picture-Frame Points, S. S.	55¢
Finishing Nails	60¢
Trunk and Clout Nails—	
Black	65¢
Tinned or Coppered	67¢
Basket Nails	60¢
Chair Nails	52¢
Cigar Box Nails	52¢
Tin Capped Nails	50¢

Miscellaneous—

Double Tip	90¢
Wire Carpet Nails	50¢
Claw Handle Carpet	50¢
Bonnie Blue	50¢

Bill Nye Brad Box

Parlatan Gilt Nails, cartoon	50¢
Plymouth Rock Carpet Tacks	20¢
Home Tacks, No. 50, 1/2 case (12 cartons), \$36.00; No. 100, 1/2 case (12 cartons), \$72.00	
Home Nails, No. 200, 1/2 case (12 cartons), \$30.00; No. 400, 1/2 case (12 cartons), \$60.00	
Upholsterers' Nails	50¢

Wire Brads and Nails**See also Nails, Wire.****Tanks, Oil—**

Emerald, S. S. & Co.: 80-gal. \$8.75; 60-gal., \$11 each	
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Tapes, Measuring—

American	40¢
Excelsior, Special list	20¢
Stearns	20¢
Chesterman's, Regular list	25¢

Thermometers—

Tin Case	30¢
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Thimble Skelns—See Skelns.**Ties, Bale—Steel.****Standard Wire, list.****Tinners' Shears, &c.—****See Shears, Tinners' &c.****Tinware—**

Stamped, Japanned and Piced, list Jan 20, 1887	70¢
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Tire Benders, Upsetters, &c.—See Benders and Upsetters.**Tire.****Tobacco Cutters—****See Cutters, Tobacco.****Tools—****Coopers—**

Bradley's	20¢
Barton's	20¢
L. & J. White	20¢
Albertson Mfg. Co.	25¢
Sandusky Tool Co.	30¢
Shaves Cincinnati Tool Co.	20¢

Lumber—

Ring Peavies, "Blue Line"	50¢
Ring Peavies, Common	50¢
Steel Socket Peavies	50¢
Mall, Iron Socket Peavies	50¢
Cant Hooks, "Blue Line"	50¢
Cant Hooks, Common Finish	50¢
Cant Hooks, Mall, Socket Clasp, "Blue Line" Finish	50¢
Cant Hooks, Mall, Socket Clasp, Common Finish	50¢
Cant Hooks, Clip Clasp, "Blue Line" Finish	50¢
Cant Hooks, Clip Clasp, Common Finish	50¢
Hand Spikes	50¢

Pike Poles, Pike & Hook

\$11.50; 14 ft., \$12.50; 16 ft., \$14.50; 18 ft., \$17.50; 20 ft., \$21.50	
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Pike Poles, Pike only

\$10.00; 14 ft., \$11.00; 16 ft., \$13.00; 18 ft., \$15.00; 20 ft., \$20.00	
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Pike Poles, Not Ironed

\$6.00; 14 ft., \$7.00; 16 ft., \$9.00; 18 ft., \$12.00; 20 ft., \$16.00	
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Setting Poles

14 ft., \$15.00; 16 ft., \$17.00	
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Swamp Hooks**Saw—**

Atkins, new list	40¢
Simonds	33¢

Transom Lifters—**See Lifters, Transom.****Traps—**

Newhouse	40¢
Onelida Pattern	75¢
Game, Blake's Patent	40¢

Mouse and Rat—

Mouse Wood, Choker, 1/2 doz holes, 90¢	
Mouse, Round Wire	50¢
Mouse, Cage, Wire	50¢
Mouse, Cage, 'em-alive	50¢
Mouse, Bonanza	50¢
Rat, Decoy	50¢
Cyclone	50¢
Hotchkiss Metallic Mouse, 5-hole traps	50¢
Hotchkiss, 75¢; in full cases, 50¢	
Hotchkiss Rat Killer	50¢
Schuyler's New Rat Killer	50¢
Dandy	50¢
Waddell's Go Bang, 1/2 doz	12.50

Harper, Champion or Paragon

1/2 doz. \$1.75; 1/2 doz. \$1.50	
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Triers—**Butter and Cheese****Trimmers, Spoke—**

Bonney's	50¢
Stearns	50¢
Ives', No. 1, \$15.00; No. 2, \$12.00	
Douglas	50¢
Cincinnati	25¢

Trowels—

Lothrop's Brick and Plastering	20¢
Reed's Brick and Plastering	20¢
Disston's Brick and Plastering	25¢
Peace's Plastering	25¢
Clement & Maynard	20¢
Rose's Brick	15¢
Brade's Brick	25¢
Worrall's Brick and Plastering	20¢
Garden	70¢
Cleaves' Angle Trowel, 1/2 doz, No. 1, \$36; No. 2, \$30; No. 3, \$15	

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list	40¢
Thompson Mfg. Co.	40¢
Harnes' Barrel Trucks	40¢
Daisy Stove Trucks, Improved pattern	40¢

Tubes Beller—**See Pipe.**

Whips

American Whip Co.	Length.	4 1/2	5	5 1/2	6	6 1/2	7	7 1/2	8 ft.
X. L. Whalebone Driving	\$18.00	20.00	22.00	24.00	27.00	30.00	33.00	36.00
Eureka, Two-thirds Whalebone	15.00	16.50	18.00	20.00	.....	.....
Bull Bone, Half-length Whalebone	11.00	12.00	13.00	15.00	.....
American Standard	8.00	8.50	9.50	10.50	12.00	13.50	15.00	16.50
True Grip, Raw Hide Center	6.00	6.00	6.50	7.00	7.50	9.00	.....	.....
New Name Stocked Java, Black and Wine Colors	6.00	.....	.....	.....	.....
Americus, 93 Pen Whip	6.00	.....	.....	.....	.....
Gents' Light Driving No. 111	6.00	.....	.....	.....	.....
Gents' Light Driving No. 106	5.00	.....	.....	.....	.....
Hand-made Stocked Java No. 108	3.75	4.00	.....	.....	.....	.....
A large variety of cheaper grades
Team Whips
Toy Whips
Hardware Assortment, 10/American, 75 Whips for \$50.00

Wire and Wire Goods—**Iron—**

Market,

Br. & Ann., Nos. 0 to 18.	.....	75¢ to 10¢	75¢ to 10¢
Cop'd, Nos. 0 to 18.	.....	75¢ to 10¢	75¢ to 10¢
Galv., Nos. 0 to 18.	.....	75¢ to 10¢	75¢ to 10¢
Tin'd, Tin'd list, Nos. 0 to 18.	.....	75¢ to 10¢	75¢ to 10¢

Extra 5¢ to 10¢ often given and low net prices often made on large lots.

Stone, Br. and Ann'd.	.....	80¢	Extra 10%
Nos. 16 to 18	.....	80¢	often given
Nos. 19 to 26	.....	80¢	.....
Nos. 27 to 36	.....	82¢	.....
Tinned Broom Wire, 18 to 21, 1/2 in.	.....	40¢	.....
Galvanized Fence	.....	75¢	.....
Brass, list Jan. 18, 1884	.....	40¢	.....
Copper, list Jan. 18, 1884	.....	40¢	.....
Ann'd Wire on Spools	.....	60¢	.....
Malin's Ann'd & Tin'd on Spools	.....	60¢	.....
Malin's Brass and Cop. on Spools	.....	60¢	.....
Ossawan Mills, Ann'd and Tinned on Spools	.....	60¢	.....

Ossawan Mills, Brass and Copper on Spools..... 50¢ to 10¢
 Tate's Spooled, Tin'd & Annealed..... 60¢ to 5¢
 Tate's Spooled Cop. and Brass..... 50¢
 Cast Steel Wire..... 50¢
 Stubs' Steel Wire..... \$6.00 to 2.30¢
 Steel Music Wire, 12 to 30, imported..... 60¢ to 70¢
 Wire Clothes Line, see Lines.
 Wire Picture Cord, see Cord.

Bright Wire Goods—

Standard list..... 85¢ to 10¢ to 90¢
 Wire Cloth and Netting..... 50¢ to 10¢
 Painted Screen Cloth 100 ft \$1.45 to \$1.50
 Galvanized Wire Netting..... 75¢ to 10¢ to 80¢

Wire Barb—

See Trade Report.

Wire Rope—See Rope, Wire.**Wrenches—**

American Adjustable..... 40¢
 Baxter's Adjustable "8"..... 40¢ to 50¢
 Baxter's Diagonal..... 60¢
 Coe's Genuine..... 50¢ to 60¢
 Coe's "Mechanics"..... 50¢ to 60¢
 Girard Standard..... 55¢ to 10¢ to 70¢
 Lamson & Sessions' Engineers'..... 60¢ to 10¢
 Lamson & Sessions' Standard..... 70¢ to 10¢
 P. S. & W. Agricultural..... 75¢ to 10¢ to 80¢
 Girard Agricultural..... 75¢ to 10¢ to 80¢
 Lamson & Sessions' Agric'l..... 75¢ to 10¢ to 80¢
 W. & B. Diamond..... 75¢ to 10¢ to 80¢

Bemis & Call's:

Pat. Combination Bright..... 40¢ to 5¢
 Pat. Combination Black..... 40¢ to 10¢
 Merrick's Pattern..... 40¢
 Briggs' Pattern..... 30¢ to 10¢
 Cylinder or Gas Pipe..... 45¢ to 5¢
 No. 3 Pipe..... 50¢
 Aiken's Pocket (Bright)..... \$8.00, 50¢ to 10¢
 The Favorite Pocket..... \$4.00, 40¢
 Webster's Pat. Combination..... 40¢
 Boardman's..... 25¢
 Always Ready..... 25¢ to 5¢
 Alligator..... 50¢
 Donohue's Engineer..... 25¢ to 10¢
 Eagle..... 50¢ to 10¢
 Acme, Nigger..... 50¢ to 2¢
 Hercules..... 70¢ to 70¢ to 5¢
 Walker's..... 55¢ to 5¢
 Diamond Steel..... 55¢ to 5¢
 Cincinnati Brace Wrenches..... 25¢ to 10¢
 Taft's Vise Wrench..... 55¢ to 10¢ to 5¢

Wringers, Clothes—

Am. Wringer Co.'s list, July 1, 1893..... 2% cash
 Galby Wringer Co.'s list, Sept. 1, 1893..... 2% cash
 Lovell Mfg. Co.'s list, July 1, 1892..... 2% cash
 Peerless Mfg. Co., list Feb. 1892..... 2% cash
 National Wringer & Mfg. Co., list June 1, 1892..... 2% cash

Wrought Goods—

Staples, Hooks, &c., list, March 17, 1892..... 85¢ to 10¢ to 5¢ to 15¢

Paints, Oils and Colors.—Wholesale Prices.

Animal and Vegetable

Oils—			
Linseed, City, raw, per gal.	.....	47	
Linseed, City, boiled	.....	50	
Linseed, Western, raw	.....	47	
Lard, City, Extra Winter	.....	70	
Lard, City Prime	.....	70	
Lard, City, Extra No. 1	.....	50	
Lard, City, No. 1	.....	45	
Lard, Western, prime	.....	45	
Cotton-seed, Crude, prime	.....	29	
Cotton-seed, Crude, off grades	.....	25	
Cotton-seed, Summer Yellow, prime	.....	36	
Cotton-seed, Summer Yellow, off grades	.....	34	
Sperm, Crude	.....	65	
Sperm, Natural Spring	.....	66	
Sperm, Bleached Spring	.....	71	
Sperm, Natural Winter	.....	71	
Sperm, Bleached Winter	.....	76	
Whale, Crude	.....	45	
Whale, Natural Winter	.....	45	
Whale, Bleached Winter	.....	48	
Whale, Extra Bleached	.....	50	
Sea Elephant, Bleached Winter	.....	32	
Menhaden, Crude, Sound	.....	36	
Menhaden, Crude, Southern	.....	36	
Menhaden, Light Pressed	.....	41	
Menhaden, Bleached W'ter	.....	43	
Menhaden, Extra Bleached	.....	44	
Tallow, City, prime	.....	50	
Tallow, Western, prime	.....	48	
Cocconut, Ceylon	.....	54¢	
Cocconut, Cochim	.....	64¢	
Cod, Domestic	.....	38	
Cod, Foreign	.....	42	
Red Elaine	.....	35	
Red Saponified	.....	5	
Bank Straits	.....	38	
Olive, Italian, bbls.	.....	68	
Neatsfoot, prime	.....	60	
Palm, prime, Lagos	.....	54¢	
Mineral Oils—			
Black, 29 gravity, 25 to 30 cold test	.....	7	
Black, 29 gravity, 16 cold test	.....	7 1/2	
Black, 29 gravity, summer	.....	6	
Cylinder light, filtered	.....	14	

Cylinder, dark, filtered	.....	10	
Paraffine, 23 1/2 to 24 gravity	.....	11	
Paraffine, 25 gravity	.....	10	
Paraffine, 28 gravity	.....	7 1/2	
Paraffine, red	.....	7 1/2	

Paints and Colors—

Barytes, Foreign, 1/2 ton	.....	\$22.00	
Barytes, Amer. No. 1	.....	29.00	
Barytes, Amer. No. 2	.....	16.00	
Barytes, Amer. No. 3	.....	13.00	
Barytes, Amer. No. 4	.....	11.00	
Blue, Celestial	.....	6	
Blue, Chinese	.....	40	
Blue, Prussian	.....	25	
Blue, Ultramarine	.....	40	
Brown, Spanish	.....	3 1/2	
Brown, Vandyke, Amer.	.....	3	
Brown, Vandyke, English	.....	6	
Carmin, No. 40, in bulk	.....	2.75	
Carmin, No. 40, in boxes	.....	2.85	
Carmin, No. 40, in ounce bottles	.....	3.75	
Chalk, in bulk	.....	1.75	
Chalk, in bbls. 100 lb	.....	33	
China Clay, English	.....	13.00	
Cobalt Oxide, prep'd	.....	9.00	
Cobalt Oxide, black	.....	11.00	
Cobalt Oxide, black, lots 100 lb	.....	1.90	
Cobalt Oxide, black, less 100 lb	.....	1.96	
Green, Paris, in bulk	.....	10	
Green, Paris, 170 to 175 lb	.....	10 1/2	
Green, Paris, small pack	.....	12	
Green, Chrome, ordinary	.....	6	
Green, Chrome, pure	.....	22	
Lead, Eng. B.B. white	.....	7	
Lead, Ann. White, dry or in oil	.....	6 1/2	
Kegs, lots less than 500 lb	.....	6	
Kegs, lots 500 lb to 5 tons	.....	6 1/2	
Kegs, lots 5 tons to 12 tons	.....	6 1/2	
Kegs, lots 12 tons and over	.....	5 1/2	
Lead, White, in oil, 25 lb tin	.....	1 1/2	
Lead, White, in oil, 12 1/2 lb tin	.....	1	
Lead, White, in oil, 1 to 5 lb assorted tins, add to keg price	.....	2 1/2	
Lead, Red, bbls. and 1/2 bbls.	.....	5 1/2	
Lead, Red, kegs	.....	5 1/2	
Litharge, kegs	.....	5 1/2	
Litharge, bbls. and 1/2 bbls.	.....	5 1/2	

TERMS, C.—Lead and Litharge.—On lots of 500 lb or over, 60 days' time or 2 1/2 % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle	.....	1.35	
Ocher, French Washed	.....	1 1/2	
Ocher, German Washed	.....	1 1/2	
Ocher, American	.....	1 1/2	
Orange Mineral, English	.....	8 1/2	
Orange Mineral, French	.....	10	
Orange Mineral, German	.....	8 1/2	
Orange Mineral, American	.....	8 1/2	
Paris White, English Cliff	.....	1.00	
Paris White, American	.....	65	
Red, Indian, English	.....	5 1/2	
Red, Indian, American	.....	2	
Red, Turkey	.....	9	
Red, Tuscan	.....	9	
Red, Venetian, American	.....	130 lb, 1.00	
Red, Venetian, English	.....	1.20	
Sienna, Italian, Burnt and Powd.	.....	4	
Sienna, Ital., Burnt Lumps	.....	1 1/2	
Sienna, Ital., Raw, Powd.	.....	4 1/2	
Sienna, Ital., Raw, Lumps	.....	1 1/2	
Sienna, American, Raw	.....	1 1/2	
Sienna, American, Burnt and Powdered	.....	1 1/2	
Talc, French	.....	1 1/2	
Talc, American	.....	1 1/2	
Terra Alba, Fr'ch, 100 lb	.....	95	
Terra Alba, English	.....	70	
Terra Alba, American No. 1	.....	65	
Terra Alba, American No. 2	.....	45	
Umber, Turkey, Burnt and Powdered	.....	3 1/2	
Umber, Turkey, Raw and Powdered	.....	2 1/2	
Umber, Turkey, R'w Lumps	.....	3 1/2	
Umber, Turkey, Bnt. Amer.	.....	1 1/2	
Umber, Turkey, R'w Amer.	.....	1 1/2	
Yellow, Chrome	.....	10	
Vermillion, American Lead	.....	11	
Vermillion, Quicksilver bags	.....	43	
Vermillion, Quicksilver sm'r pkgs.	.....	52	
Vermillion, English Import	.....	80	
Vermillion, Imitation, Eng.	.....	8	
Vermillion, Trieste	.....	90	
Vermillion, Chinese	.....	95	
Whiting, Common, 100 lb	.....	37 1/2	
Whiting, Gilders'	.....	45	

Zinc, American, dry..... 3 1/2 to 4 1/2
 Zinc, French, Red Seal..... 7 1/2 to 9
 Zinc, French, Green Seal..... 9 to 11
 Zinc, French, V. M. X..... 7 to 9
 Zinc, Antwerp, Red Seal..... 7 1/2 to 9
 Zinc, Antwerp, Green Seal..... 7 1/2 to 9
 Zinc, German, L. Z. O..... 6 1/2 to 7 1/2
 Zinc, V. M. in Poppy Oil, G. Seal, lots of 1 ton and over..... 10 1/2 to 11 1/2
 Zinc, V. M. in Poppy Oil, Red Seal, lots of 1 ton and over..... 10 to 10 1/2
 Zinc, V. M. in Poppy Oil, lots of less than 1 ton..... 10 1/2 to 10 3/4
 Discounts—French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 15, 25 bbls., 2 1/2, 50 bbls. 4%. No discount allowed on less than bbl. lots.

Colors in Oil—

Black, Drop, Frankfurt	.....	25	
Black, Drop, English	.....	12	
Black, Drop, Domestic	.....	7	
Black, Lamplack, Best	.....	20	
Black, Lamplack, Common	.....	7	
Black, Ivory	.....	8	
Blue, Chinese	.....	35	
Blue, Prussian	.....	20	
Blue, Ultramarine	.....	12	
Brown, Vandyke	.....	7	
Green, Chrome	.....	8	
Green, Paris	.....	18	
Sienna, Raw	.....	7	
Sienna, Burnt	.....	7	
Umber, Raw	.....	7	
Umber, Burnt	.....	7	

Putty—

In barrels and 1/2 bbls.	.....	.013¢	
In tubs	.....	.015¢	
In tin cans	.....	.014¢	
In bladders	.....	.013¢	

Spirits Turpentine—

In regular bbls.	.....	30 1/2	
In machine bbls.	.....	31	

Glue—

Low Grade	.....	8	
Cabinet	12	
Medium White	13	
Extra White	17	
French	10	
English	10	
Irish	12	

THE IRON AGE.

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